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Working Paper

COVERAGE AND ACHIEVEMENT IN THE U.S. MATHEMATICS CURRICULUM: DATA FROM THE IEA SECOND INTERNATIONAL MATHEMATICS STUDY

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SIMS DATA-BASE ENHANCEMENT PROJECT
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NOTE

This technical report has four parts:

Part 1: Introduction

Part 2: Plots and accompanying data showing the relationship between teacher coverage of items in the item pool used in the IEA Second International Mathematics Study and student achievement on those items. The findings are reported for each of the courses types commonly found in U.S. schools at the grade 8 and grade 12 levels, i.e., for Grade 8, *remedial, typical, enriched* (or *pre-algebra*) and *algebra*; for Grade 12, *precalculus* and *calculus*.

Part 2 also contains p-values and coverage (Opportunity-to-learn (OTL)) indices for all 180 items used in the U.S. study. The data is presented by course type and content area, ordered by p-value.

Part 3: Data ordered by standard SIMS item ID for all course types.

Part 4: Aggregate p-values and coverage indices for the content areas that are analysed, i.e.

for Grade 8

Arithmetic
    Algebra
    Geometry
    Statistics
    Measurement

Grade 12

- Sets & Relations
- Number Systems
- Algebra
- Geometry
- Elementary Functions and Analysis
- Probability and Statistics.

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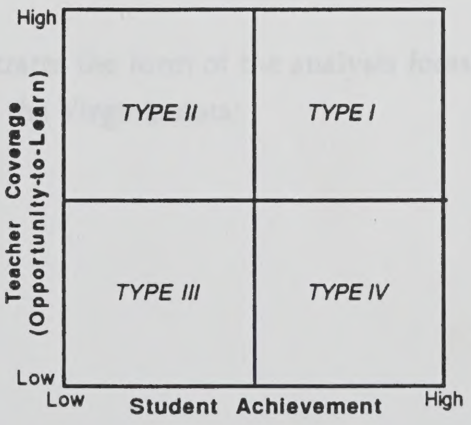
INTRODUCTION

Background and Context

This technical report contains the materials needed to undertake an analysis of part of the U.S. mathematics curriculum using data from the IEA Second International Mathematics Project (SIMS). The form and thrust of this analysis is foreshadowed in Mathematics Counts in Virginia (Virginia International Mathematics Assessment Project 1989: 33-49), the final report of a replication of SIMS undertaken in Virginia. In the words of the Main Report of the Virginia Study:

> A unique feature of the Second International Mathematics Study is that it enables a detailed look at the teaching and learning of specific mathematical topics. One analysis that provides useful information in that of comparing reported teacher coverage of topics with student achievement on those topics.
>
> The relation between teacher coverage and student achievement has been demonstrated... In fact, a major finding of the Second International Mathematics Study is that high student achievement is found in those countries where teacher coverage of those topics is high. With this in mind, it is of interest to look in some detail at data from Virginia on teacher coverage and student achievement. We will classify the items from the international test in two ways: according to the teacher coverage (high or low) and according to student achievement (high or low). As a result, each item can be one of four types, as the diagram below suggests:



The four quadrants of this figure represent items and/or areas of the curriculum with quite different character:

Type I: *High* Teacher Coverage and *High* Student Achievement

'These items perform as one would expect. A high proportion of teachers taught the content of the item and a high proportion of students got the item right.'

Type II: *High* Teacher Coverage and *Low* Student Achievement

'These items, if they deal with important curricular content, are of concern. Teachers give the content high coverage but students find it difficult.'

Type III: *Low* Teacher Coverage and *Low* Student Achievement

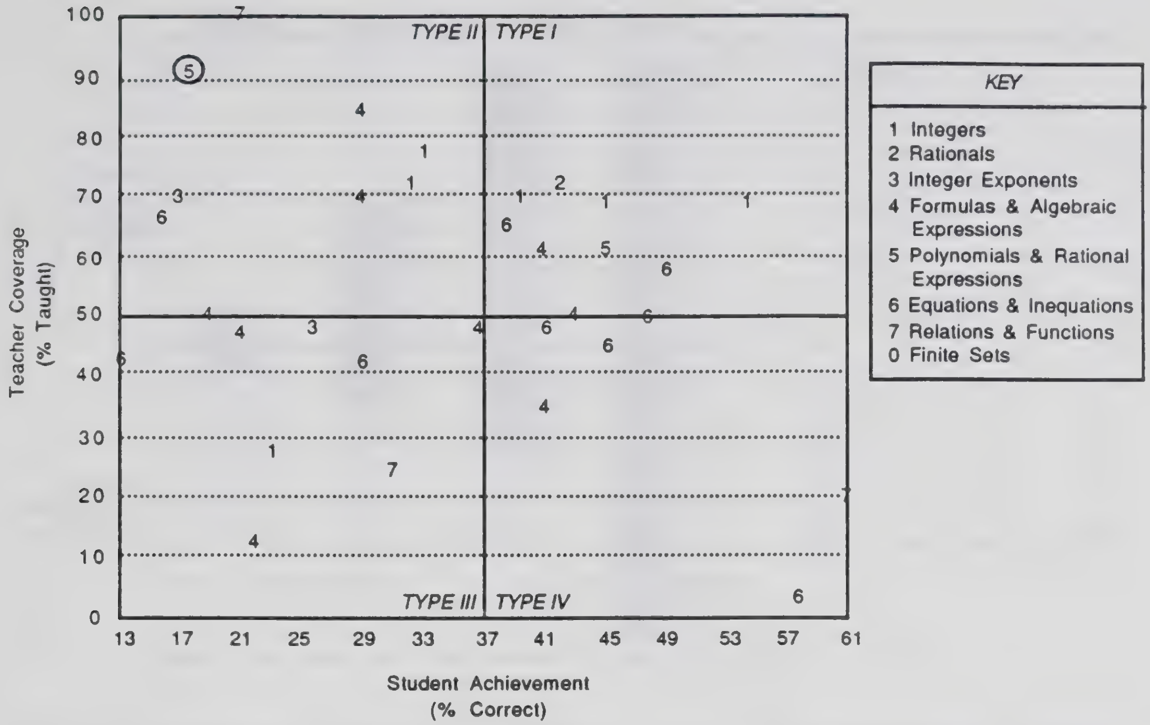
'These items, if they deal with important curricular content, are of concern for a different reason than for Type II items. Teachers are not teaching this content -- and, correspondingly, students find it difficult.'

Type IV: *Low* Teacher Coverage and *High* Student Achievement

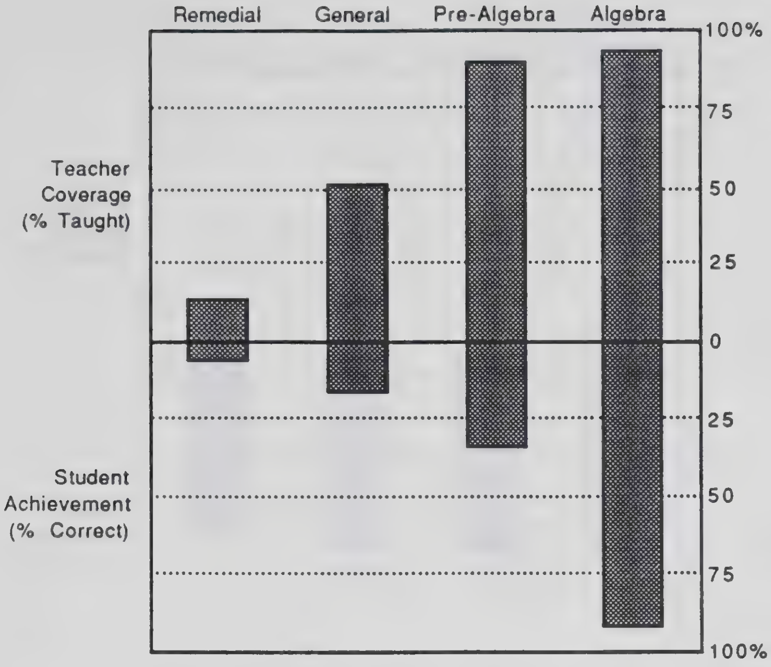
'These items are in some ways the most interesting. Teacher coverage is low but students do well on them.

(Virginia Mathematics Assessment Project 1989: 34-35)

The following demonstrates the form of the analysis foreshadowed by this structure for one set of the Virginia data:



The Report went on to illustrate some of the interpretations that could emerge from an analysis of individual items in the Virginia data in the following ways:



Simplify:

$5x + 3y + 2x - 4y$

A $7x + 7y$

B $8x - 2$

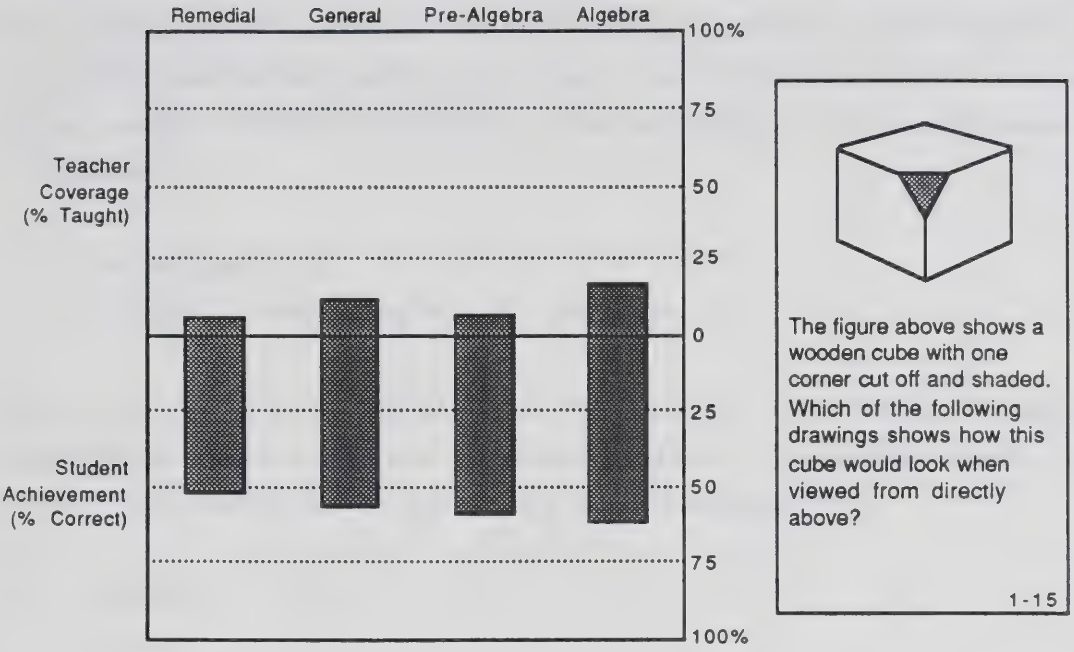
C $6xy$

D $7x - y$

E $7x + y$

2-24

Note: Item 2-24 is more like a Type III item (it received low teacher coverage and was difficult for the students) for remedial students and Type I item (it received high teacher coverage and was easy for the students) for eighth grade algebra classes.



The figure above shows a wooden cube with one corner cut off and shaded. Which of the following drawings shows how this cube would look when viewed from directly above?

Spatial visualization, as represented by this item, was relatively easy for all students. Again, the performance of the remedial mathematics classes is noteworthy.

This report provides the data necessary to undertake an analysis for the *U.S.* grade 8 and grade 12 mathematics curricula of the kind undertaken for Virginia by the Virginia International Mathematics Assessment Project.

Structure of the Report

The core of this report consists of 36 figures similar in structure to those in the Virginia Report. These figures, together with the accompanying listings of data, provide a resource to undertake an analysis for U.S. schools of coverage/achievement patterns. The goal of such a study is, most importantly, the pinpointing of areas of the curriculum (i.e., items in the SIMS item pool and/or content areas) in which student achievement seems to fall below or above 'expectations'.

The organization of the main body of this report follows the organization of the United States' version of the Second International Mathematics Study. Thus the report contains data on responses at two levels, grades 8 and 12, to the items in the SIMS item pool from a national sample of teachers and students . The resulting data is organized along two dimensions:

1. Course type
2. Content area within the overall curriculum

Course Type: In the U.S. study all classes in the sample were classified on the basis of course title, text used, patterns of content coverage into the generalized course types found in grade 8 and grade 12 math classes. For grade 8 these types were:

Remedial
Typical
Enriched (or Pre-algebra)
Algebra.

For grade 12 these types were:

Pre-calculus
Calculus

Content areas: The items making up the SIMS item pools (180 items at Grade 8 and 136 items at Grade 12) were classified into a number of content areas as follows (1):

Grade 8

Arithmetic
Algebra
Geometry
Statistics
Measurement

Grade 12

- Sets & Relations
- Number Systems
- Algebra
- Geometry
- Elementary Functions and Analysis
- Probability and Statistics
- Finite Mathematics.

These content areas provide the core structure of the report. The SIMS sub-domains set out in Table 1 provide the classificatory structure for items used within the figures. **Items with figures in Section I are identified by the values associated with sub-domains presented in Table 1 and referenced in the legends on each table.**

(The identity of individual items must be inferred from placement of the item in the figure. The data that is reported with each figure contains the p-value and coverage index for each item in its associated figure as well as the (standard) SIMS ID number and the short text for each item. The full text of each item can be found in Chang and Ruzicka (1985). Part 3 provides a listing by Item ID of coverage and achievement indices for class types.

Table 1: Content Areas in the SIMS Cognitive Grid

A. Grade 8 (180 items)

ID	Content area	N Items
Arithmetic		
1	Natural Numbers	10
2	Common Fractions	12
3	Decimal Fractions	13
4	Ratio, Proportion, Percent	17
5	Number Theory	3
6	Exponents	3
8	Square Roots	3
9	Dimensional Analysis	1
Algebra		
1	Integers	5
2	Rationals	1
3	Integer exponents	2
4	Formulas	9
5	Polynomials	2
6	Equations & inequations	9
7	Relation s & functions	3
10	Finite sets	1
Geometry		
1	Classification of plane figures	5
2	Properties of plane figures	8
3	Congruence of plane figures	3
4	Similarity of plane figures	4
5	Geometric constructions	1
6	Pythagorean triangles	3
7	Coordinates	5
8	Simple deductions	2
9	Informal transformations	4
12	Spatial visualization	3
15	Transformational geometry	4
Statistics		
1	Data collection	1
2	Organization of data	3
3	Representation of data	7
4	Interpretation of data	6
6	Outcomes & events	1
Measurement		
1	Standard units	5
2	Estimation	6
3	Approximation	3
4	Determination of measures (area, volumes, etc,)	12

B. Population B (136 items)

Sets & Relations

ID	Content area	N Items
2	Set operations	2
4	Functions	5

Number Systems

1	Common laws for number systems	3
2	Natural numbers	4
3	Decimals	3
4	Real numbers	3
5	Complex numbers	6

Algebra

1	Polynomials	6
2	Quotients of polynomials	2
3	Roots & radicals	5
4	Equations & inequalities	6
5	Systems of equations & inequalities	5
6	Matrices	1

Geometry

1	Euclidean geometry	1
3	Analytic geometry in the plane	9
5	Vector methods	6
6	Trigonometry	7
9	Transformational geometry	5

Elementary Functions and Analysis

1	Elementary functions	11
2	Properties of functions	4
3	Limits & continuity	4
4	Differentiation	4
5	Applications of the derivative	10
6	Integration	6
7	Techniques of integration	2
8	Applications of integration	5

Probability and Statistics

1	Probability	3
2	Statistics	3
3	Distributions	1

Finite Mathematics*

1	Combinatorics	4

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*Not included in this report

NOTES

1. The content classification used in SIMS and the classification of items within content areas and sub-areas was common across all countries participating in the Study. The classification in described in Travers & Westbury (1989).

2. The course type p-values reported here are aggregates of class-level p-values and were computed from the SIMS database held at the University of Illinois at Urbana-Champaign. Class-level p-values were calculated across all students in each class responding to an item.

3. Coverage indices for each grade level and course type were derived from the responses of teachers in the participating classes to the SIMS Teacher Opportunity-to-Learn Questionnaire. This questionnaire asked teachers to indicate whether or not (and when) each class in the SIMS sample had been taught the content underlying each item on the SIMS test forms:

A. During this school year, did you teach or review the mathematics needed to answer the item correctly?

1. *No*
2. *Yes*

B. If, during this year, you did NOT teach or review the mathematics needed to answer this item correctly, was it because?

1. *It has been taught prior to this school year.*
2. *It will be taught later (this year or later).*
3. *It is not in the school curriculum at all.*
4. *For other reasons.*

Following the conventions used in SIMS, responses to this item were categorized as 1='taught this year or prior', and 0='not taught' (see Chang and Ruzicka 1985). The teacher coverage index is the mean response of teachers in each class type.

REFERENCES

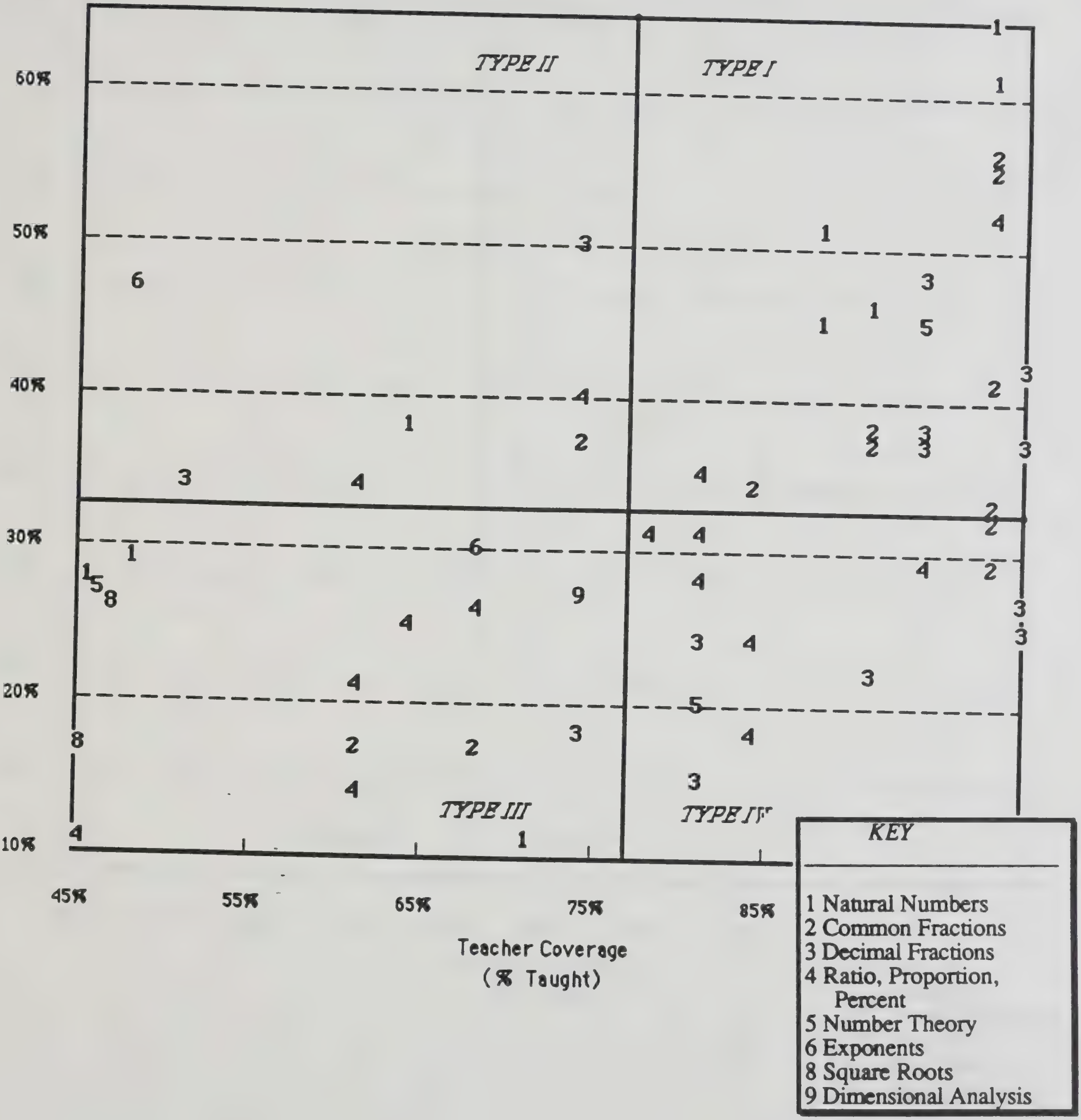
Chang, L-C. and Ruzicka, J. (1985) Second International Mathematics Study: United States: Technical Report I: Item Level Achievement Data Eighth and Twelfth Grades (Champaign, IL: Stipes).

Travars, K.J. and Westbury, I. (1989) The IEA Study of Mathematics,1: Analysis of Mathematics Curriculum (Oxford: Pergamon Press).

Virginia International Mathematics Assessment Project (1989) Mathematics Counts in Virginia: Main Report (Richmond: Commonwealth of Virginia Department of Education Mathematics Service).

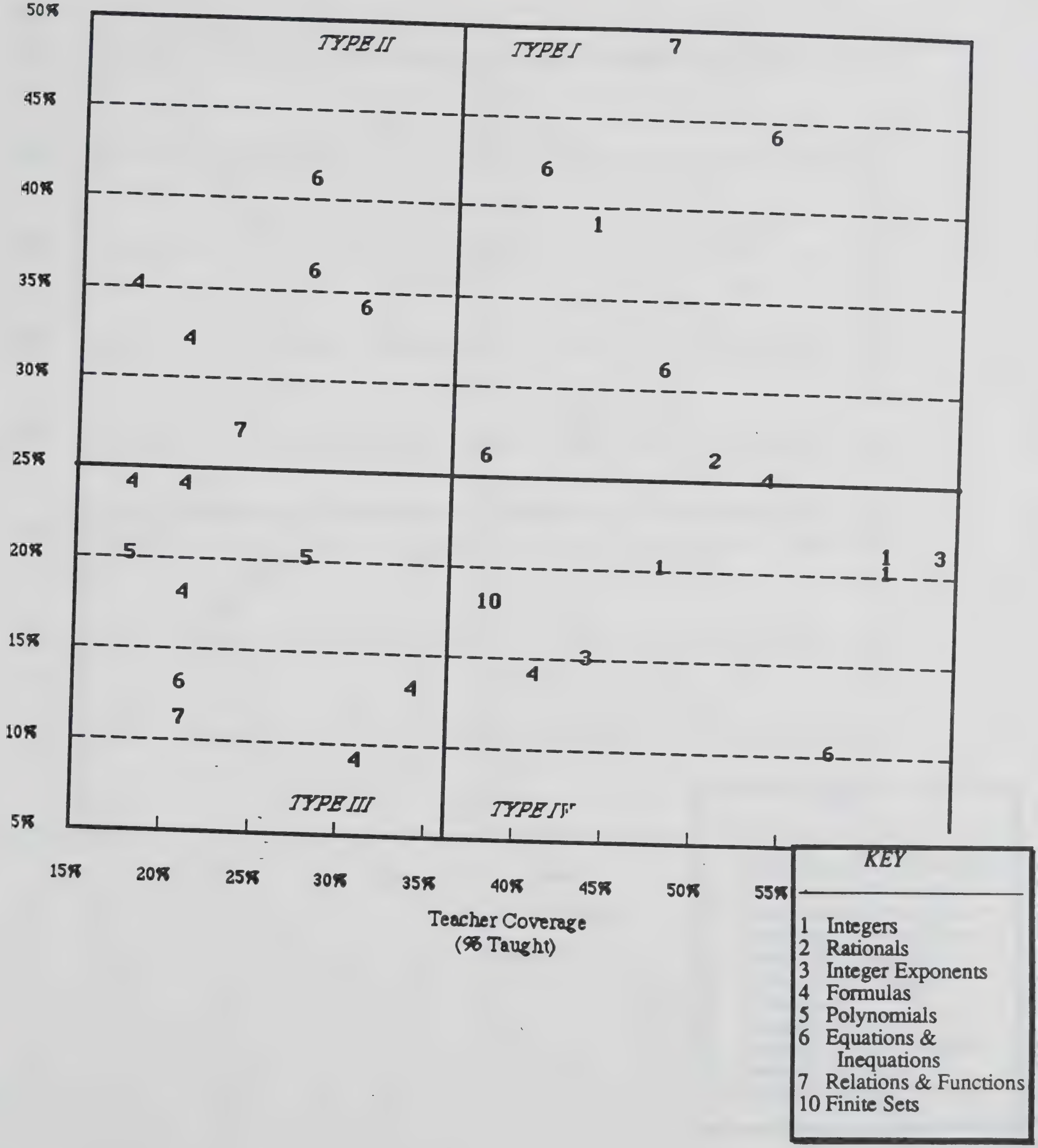
United States
Population A

Arithmetic:
Remedial Classes



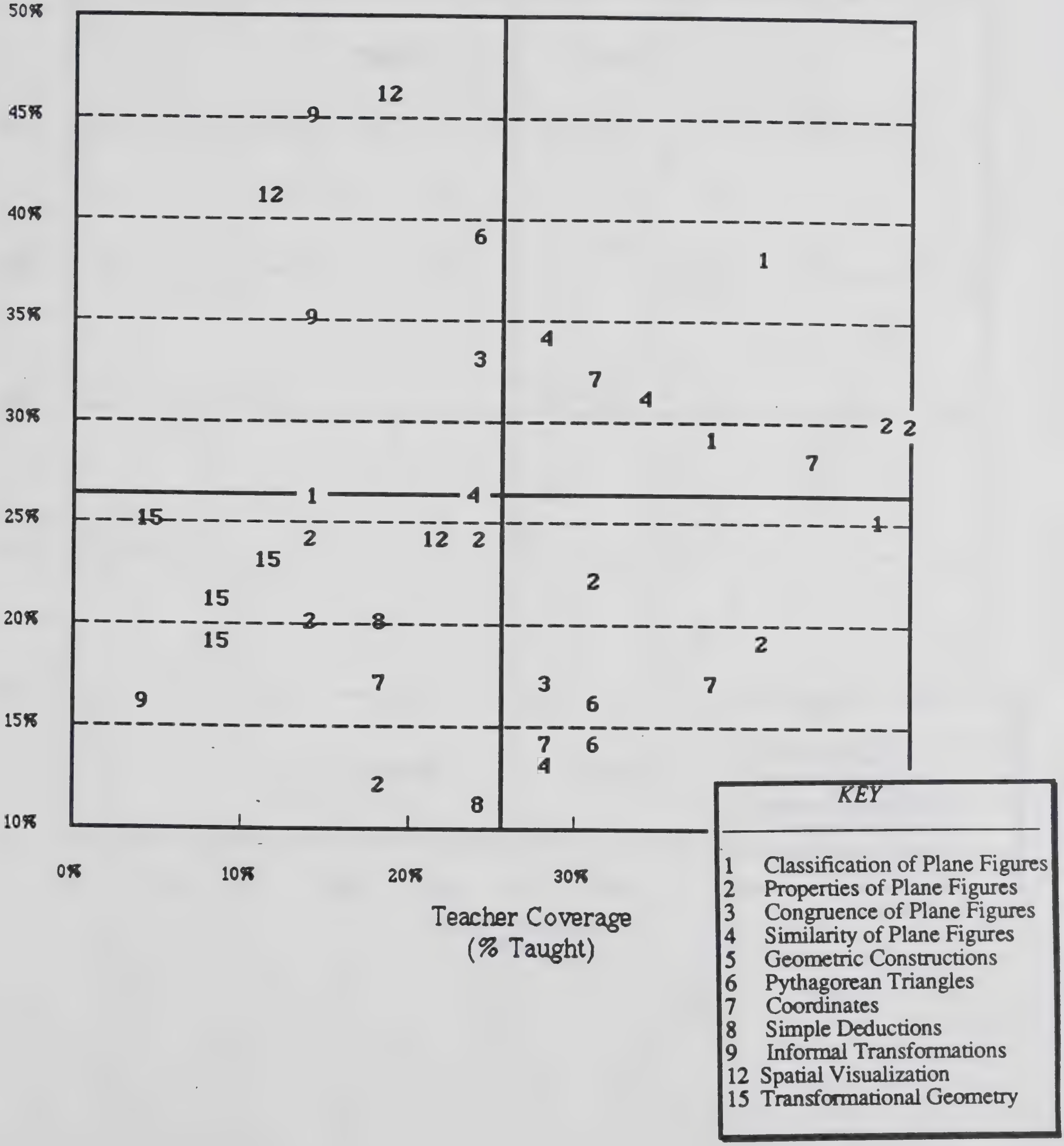
United States:
Population A

Algebra:
Remedial Classes



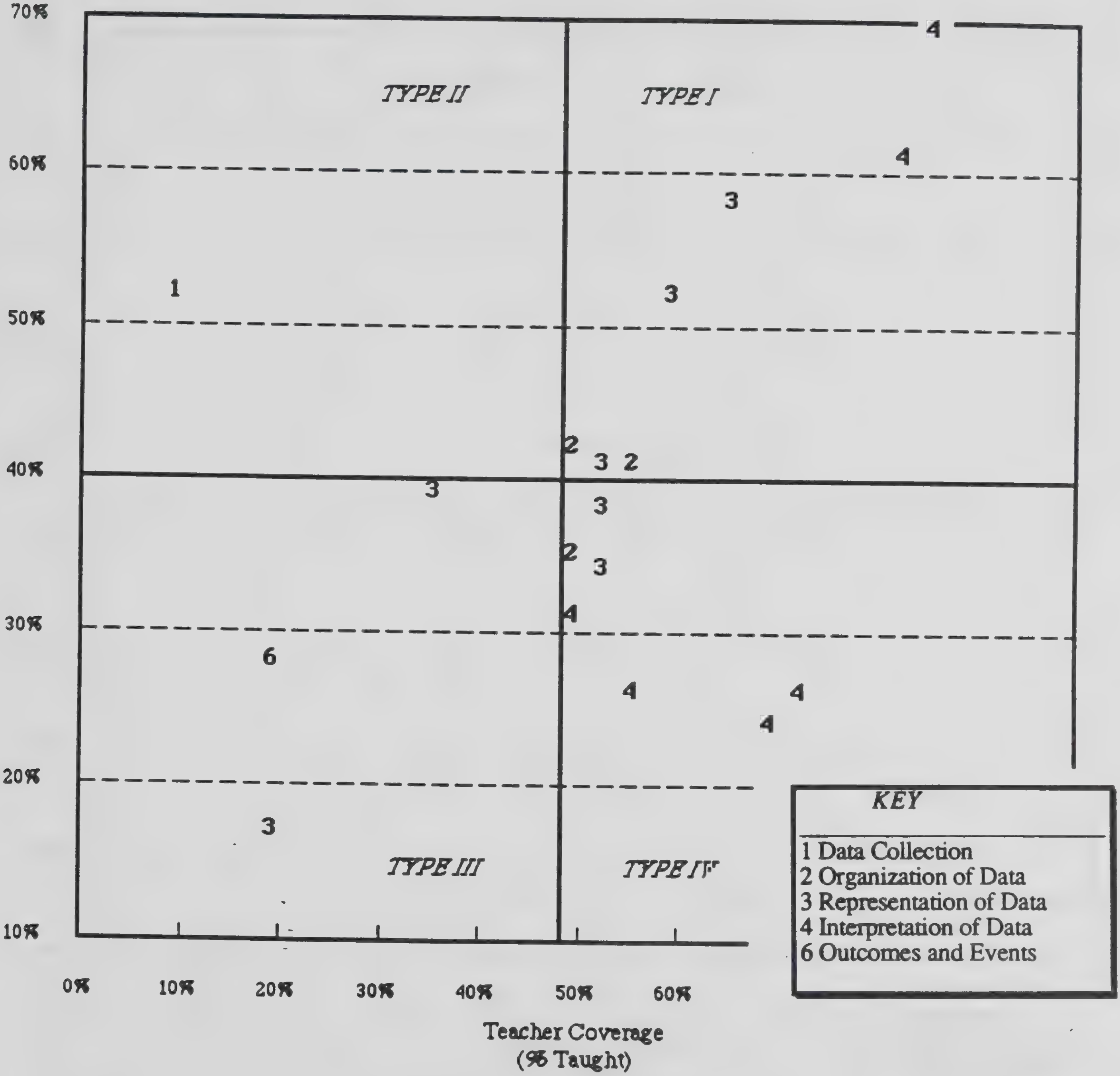
United States
Population A

Geometry:
Remedial Classes



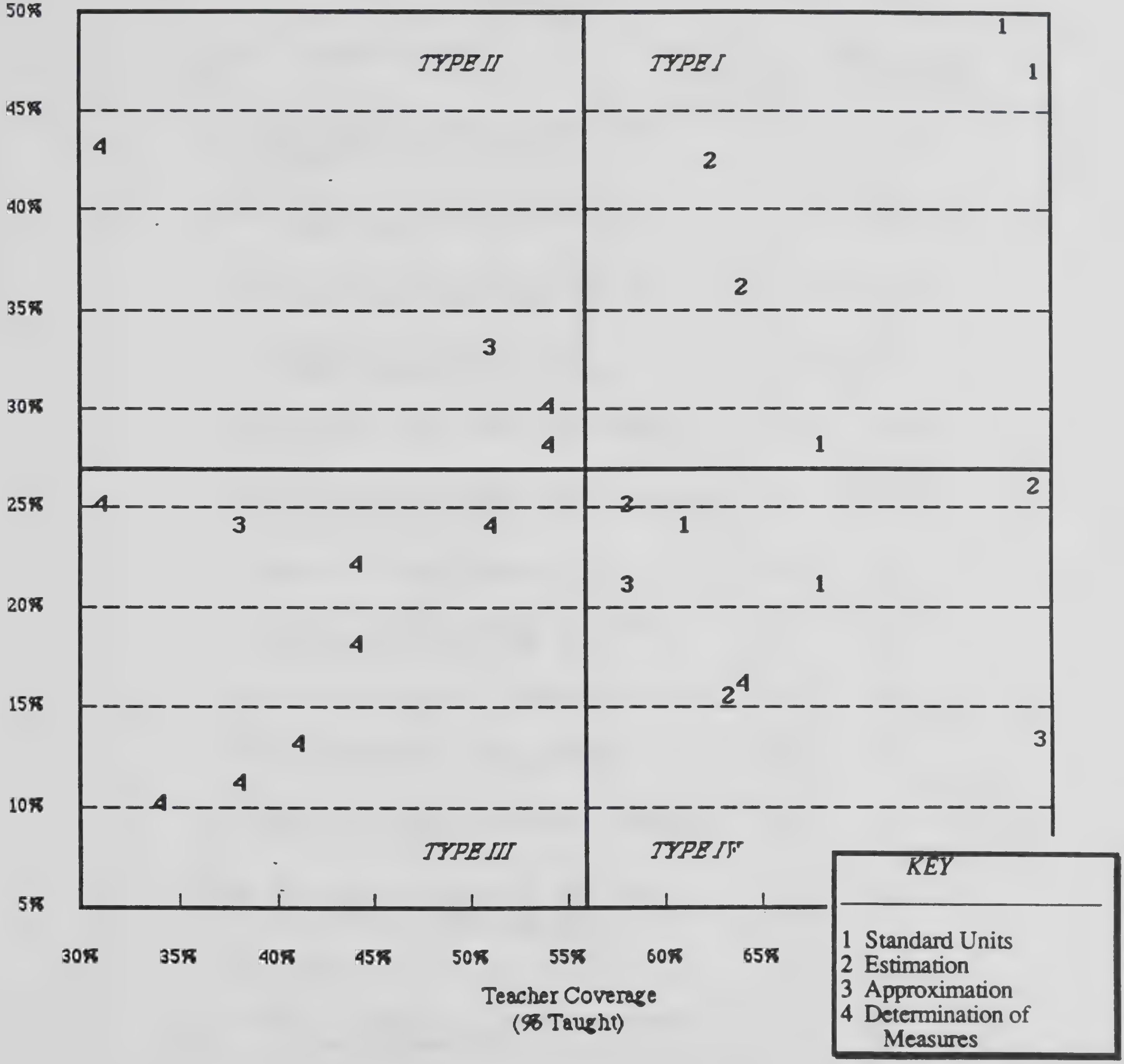
United States
Population A

Statistics:
Remedial Classes



United States
Population A

Measurement:
Remedial Classes



POPULATION A:
REMEDIAL CLASSES

ARITHMETIC

Item ID	Short Text	p-value	OTL %	Sub-Area
142	THE TABLE ABOVE SHOWS THE VALUES OF X AND Y	11	43	4
105	WHICH OF THE FOLLOWING IS (ARE) TRUE?	11	70	1
191	THE PRICE OF AN ARTICLE WAS $100. THE PRICE WAS FI	14	60	4
6	ALEXANDRA WALKED FROM RIVERVIEW TO BRIDGEPORT	15	80	3
11	WHAT IS THE SQUARE ROOT OF 12 * 75?	17	43	8
74	(TRIANGULAR ARRAY OF 1'S) WHAT IS THE SUM OF THE 5	17	23	1
43	WHICH OF THE POINTS A	17	60	2
76	FOUR 1-LITER BOWLS OF ICE CREAM WERE SET OUT AT A	17	67	2
179	WHAT IS 20 AS A PERCENT OF 80?	18	83	4
78	A RUNNER RAN 3000 METRES IN EXACTLY 8 MNS. WHAT WAS	18	73	3
111	WHICH OF THE FOLLOWING EQUALS 7 * (3 + 9)?	20	80	5
180	$150 IS DIVIDED IN THE RATIO OF 2 TO 3. THE SMALLER	21	60	4
81	SINCE 4 * 9 = 36	21	33	8
45	THE VALUE OF 0.2131 * 0.02958 IS APPROXIMATELY	22	90	3

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* Note: Items are ordered by p-value.

110	IN A SCHOOL ELECTION WITH THREE CANDIDATES	24	83	4
184	THE LARGE SQUARE HAS AREA 1 SQUARE UNIT. THE AREA	24	80	3
192	A CAR TAKES 15 MINUTES TO TRAVEL 10 KILOMETERS. WH	25	63	4
140	7 3/20 IS EQUAL TO	25	10	3
79	A PAINTER IS TO MIX GREEN AND YELLOW PAINT IN THE	26	67	4
144	ONE BELL RINGS EVERY 8 MINUTES, A SECOND BELL	27	37	5
108	.004)24.56 IN THE DIVISION ABOVE	27	10	3
146	FIND THE SUM: 3 WEEKS 5 DAYS + 9 WEEKS 6 DAYS	27	73	9
145	THE SQUARE ROOT OF 75 IS BETWEEN	27	40	8
190	CLOTH IS SOLD BY THE SQUARE METER. IF 6 SQUARE MET	28	80	4
2	MATCHSTICKS ARE ARRANGED AS FOLLOWS. IF THE PATTERN	28	20	1
3	2/5 + 3/8 IS EQUAL TO	29	97	2
106	PETER AND PAUL DECIDED TO START SAVING MONEY. PETER	29	47	1
46	20% OF 125 IS EQUAL TO	29	93	4
189	1/5 IS EQUAL TO	29	93	4
112	3.23 * 10**5 IS EQUAL TO	30	67	6
10	THE VALUE OF 2**3 * 3**2 IS 10*N. THEN N IS EQUAL	31	73	6
47	IF THE RATIO OF 2 TO 5 EQUALS THE RATIO OF N TO 10	31	73	4
177	CANDIDATE A RECEIVED 70 PERCENT OF THE VOTES CAST	31	80	4
8	IN A SCHOOL OF 800 PUPILS	31	77	4

107	1 2/5 - 1/2 IS EQUAL TO	32	97	2
187	3/8 - 1/5 IS EQUAL TO	33	97	2
181	A MODEL BOAT IS BUILD TO SCALE SO THAT IT IS 1/10	34	60	4
44	THERE ARE 35 STUDENTS IN A CLASS. 1/5 OF THEM COME	34	83	2
141	THE SPEED OF SOUND IS APPROXIMATELY 340 METERS PER	34	50	3
9	30 IS 75% OF WHAT NUMBER?	35	80	4
182	WHICH OF THE FOLLOWING IS THIRTY-SEVEN THOUSANDTHS	37	10	3
185	WHICH IS THE CLOSEST ESTIMATE FOR THE ANSWER TO 5	37	90	2
7	(847.36) IN THE NUMBER IN THE BOX	37	93	3
75	IN THE FIGURE THE LITTLE SQUARES ARE ALL THE SAME	37	73	2
137	WHICH OF THE FOLLOWING OPERATIONS WITH WHOLE NUMBER	38	63	1
188	THE PICTURE SHOWS SOME BLACK AND SOME WHITE MARBLE	38	90	2
183	74.236 ROUNDED TO THE NEAREST HUNDREDTH IS	38	93	3
143	IF THERE ARE 300 CALORIES IN 100 GRAMS OF A CERTAIN	40	73	4
139	(3/5)/(2/7) IS EQUAL TO	41	97	2
5	0.40 * 6.38 IS EQUAL TO	42	10	3
138	A GROUP OF CHILDREN WAS DIVIDED INTO 7 TEAMS WITH	45	87	1
80	WHICH OF THESE NUMBERS IS A PRIME NUMBER?	45	93	5
1	(22 * 18) - (47 + 59) IS EQUAL TO	46	90	1
48	IF 10**2 * 10**3 = 10**N THEN	47	47	6

	N IS EQUAL TO			
109	IN A DISCUS-THROWING COMPETITION	48	93	3
77	THE POSITION ON THE SCALE INDICATED BY THE ARROW I	50	73	3
42	WHICH OF THE FOLLOWING IS EQUAL TO A QUARTER OF A	51	87	1
178	72% IS EQUAL TO	52	97	4
186	1/2 * 1/4 IS EQUAL TO	55	97	2
4	WHICH OF THE FOLLOWING IS A PAIR OF EQUIVALENT FRA	56	97	2
73	162 * 47 IS EQUAL TO	61	97	1
41	1054 - 865	73	97	1

ALGEBRA

Item ID	Short Text	p-value	OTL %	Sub-Area
115	IF X = -3, THE VALUE OF -3X EQUALS	9	30	4
87	THE DAVIS FAMILY TOOK A CAR TRIP FROM ANABRU THROU	10	57	6
55	FOR THE TABLE SHOWN, A FORMULA THAT COULD RELATE	11	20	7
151	IF 5X + 4 = 4X - 31	13	20	6
195	A NUMBER X IS MULTIPLIED BY ITSELF AND THE RESULT	13	33	4
148	WHICH OF THE FOLLOWING IS FALSE WHEN A	14	40	4
172	FIND THE VALUE OF N. N = 10**3 + 10**1 + 10**0 + 1	15	43	3
120	THE SYMBOL P INTERSECT Q REPRESENTS THE INTERSECTI	18	37	10
15	SIMPLIFY: 5X + 3Y + 2X - 4Y	18	20	4
88	A/15 - B/5 IS EQUAL TO	20	27	5
82	THE SET OF INTEGERS LESS THAN 5 IS REPRESENTED ON	20	47	1
113	(-6) - (-8) IS EQUAL TO	20	60	1
53	WHEN X = 2	20	17	5
13	THE AIR TEMPERATURE AT THE FOOT OF A MOUNTAN IS 31	21	73	1
12	(-2) * (-3) IS EQUAL TO	21	60	1
84	0.00046 IS EQUAL TO	21	63	3

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* Note: Items are ordered by p-value.

16	SODA COSTS A CENTS FOR EACH BOTTLE	24	20	4
116	IF X = Y = Z = 1, THEN (X-Z)/(X+Y) EQUALS	24	17	4
85	IF Y DOLLARS ARE SHARED EQUALLY AMONG FOUR BOYS	25	53	4
14	WHICH OF THE FOLLOWING SEQUENCES OF NUMBERS IS IN	26	50	2
18	THE ERROR IN THE ABOVE REASONING	26	37	6
19	THE TABLE BELOW COMPARES THE HEIGHT FROM WHICH A B	27	23	7
86	IF 4X/12 = 0	31	47	6
52	THE COST OF PRINTING GREETING CARDS CONSISTS OF A	32	20	4
118	(X/2) < 7 IS EQUIVALENT TO	34	30	6
149	A SHOPKEEPER HAS X KG OF TEA IN STOCK. HE SELLS 15	35	17	4
117	'SIX TIMES A CERTAIN NUMBER (CALL IT Q) EQUALS THE	36	27	6
49	-5(6 - 4) IS EQUAL TO	39	43	1
196	THE SENTENCE 'A NUMBER X DECREASED BY 6 IS LESS TH	41	27	6
54	WHICH EQUATION IS TRUE FOR ALL VALUES OF N?	42	40	6
17	IF P = LW AND IF P = 12 AND L = 3	44	53	6
152	A BOWLING BALL TRAVELS 4 METERS PER SECOND.	49	47	7

GEOMETRY

Item ID	Short Text	p-value	OTL %	Sub-Area
62	IN THE ABOVE RECTANGLE THE MEASURE OF ANGLES ROQ I	11	23	8
59	THREE STRAIGHT LINES INTERSECT AS SHOWN IN THE DIA	12	17	2
125	IF TWO TRIANGLES ARE SIMILAR, WHICH OF THE FOLLOWIN	13	27	4
175	ON A NUMBER LINE TWO POINTS A AND B ARE GIVEN. THE	14	27	7
93	WHICH OF THESE IS A CORRECT STATEMENT FOR THIS TRI	14	30	6
63	PQRS IS A RECTANGLE. ITS IMAGE AFTER A TRANSFORMAT	16	3	9
27	(RIGHT TRIANGLE WITH 2 SIDES GIVE) WHAT IS THE VAL	16	30	6
126	THE STRAIGHT LINE JOINING THE POINTS (2,3) AND	17	37	7
29	ONE OF THE FOLLOWING POINTS CAN BE JOINED TO THE P	17	17	7
25	THE TRIANGLES SHOWN ABOVE ARE CONGRUENT. THE MEASU	17	27	3
173	U AND V ARE TWO VECTORS. WHICH FIGURE BELOW REPRES	19	7	15
123	IN A QUADRILATERAL, TWO OF THE ANGLES ARE 110 DEGRE	19	40	2
23	THE LENGTH OF THE CIRCUMFERENCE OF THE CIRCLE WITH	20	13	2

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* Note: Items are ordered by p-value.

127	IN THE ABOVE DIAGRAM, TRIANGLES ABD AND DEF ARE	20	17	8
171	IF D IS THE DIRECTION OF PROJECTION AND A IS THE A	21	7	15
128	IF, IN A GIVEN FIGURE,PQ AND RS ARE INTERSECTING	22	30	2
174	A HALF-TURN ABOUT O IS APLIED TO THE FIGURE ABOVE.	23	10	15
155	IF AB IS A STRAIGHT LINE, WHAT IS THE MEASURE IN	24	23	2
90	THE LINE M IS A LINE OF SYMMETRY FOR FIGURE ABCDE.	24	13	2
198	WHICH OF THE FOLLOWING PATTERNS CAN BE FOLDED ALON	24	20	12
170	GIVEN VECTOR V AND VECTOR W AS SHOWN IN THE FIGURE	25	3	15
21	A QUADRILATERAL MUST BE A PARALLELOGRAM IF IT HAS	25	47	1
96	TRIANGLE ABC AND TRIANGLE A’B’C’ ARE CONGRUENT AND	26	13	9
197	THE PICTURE ABOVE SHOWS HOW PEDRO USED A SHORT TREE	26	23	4
28	WHAT ARE THE COORDINATES OF POINT P?	28	43	7
58	LINES AB AND CD ARE PARALLEL. TWO ANGLES WHOSE MEA	29	37	2
122	(TRIANGLE WITH 2 ANGLES GIVEN) X IS EQUAL TO	30	47	2
57	THE FIGURE QRST IS A SQUARE AND PQT AN EQUILATERAL	30	50	1
26	ON LEVEL GROUND, A BOY 5 UNITS TALL CASTS A SHADOW	31	33	4
169	SUPPOSE YOU START AT POINT M(-1,-1), MOVE A DISTANC	32	30	7
24	IF SEGMENT PQ WERE DRAWN FOR EACH FIGURE SHOWN BELO	33	23	3

121	WHICH OF THE INDICATED ANGLES IS ACUTE?	33	73	1
156	TRIANGLES PQR AND STU ARE SIMILAR. HOW LONG IS SU?	34	27	4
158	TRIANGLE PQT CAN BE ROTATED (TURNED) ONTO TRIANGLE	35	13	9
89	AB // DC AND AD // BC. QUADRILATERAL ABCD IS A	36	60	1
22	AB, CD AND EF ARE INTERSECTING STRAIGHT LINES.	38	40	1
193	(TRAPEZOID WITH DIMENSIONS) X IS EQUAL TO	39	23	6
159	THE FIGURE ABOVE SHOWS A WOODEN CUBE WITH ONE CORN	41	10	12
30	IN WHICH DIAGRAM BELOW IS THE SECOND FIGURE THE IM	45	13	9
31	THE DIAGRAM SHOWS A CARDBOARD CUBE WHICH HAS BEEN	46	17	12
91	ONE OF THE FOLLOWING FIGURES IS CONGRUENT WITH THE	54	63	3

STATISTICS

Item ID	Short Text	p-value	OTL %	Sub-Area
129	THERE ARE 7M GIRLS UNDER THE AGE OF 21	17	17	3
130	THE WEIGHT GAIN FROM 6 TO 10 MONTHS WAS	24	67	4
35	THE ARITHMETIC MEAN (AVERAGE) OF: 1.50	26	70	4
162	THE GRAPH SHOWS THE TIME OF TRAVEL BY PUPILS FROM	26	53	4
163	THERE ARE FIVE BLACK BUTTONS AND ONE RED BUTTON IN	28	17	6
99	IN THE GRAPH RAINFALL IS PLOTTED FOR 13 WEEKS.	31	47	4
66	THE GRAPH SHOWS THE DISTANCE TRAVELED BY A TRACTOR	34	50	3
131	THE PETALS ON 100 FLOWERS OF DIFFERENT KINDS WERE	35	47	2
161	HOW MUCH LONGER DOES IT TAKE FOR CAR B TO GO 50 KI	38	50	3
98	HERE IS A TABLE OF DATA AND A GRAPH OF THE SAME DA	39	33	3
160	THREE HOURS AFTER STARTING CAR A IS HOW MANY KILOME	41	50	3
97	A TABLE SHOWS SCORES FOR A CLASS ON A 10-POINT TES	41	53	2
32	HERE IS A TABLE THAT SHOWS THE NUMBER OF TREES PLA	42	47	2

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* Note: Items are ordered by p-value.

33	THE CIRCLE GRAPH SHOWS THE PROPORTION OF VARIOUS G	52	57	3
65	YOU WISH TO KNOW ABOUT THE POPULARITY OF THE SOFT-DRINK	52	7	1
34	WHICH OF THESE IS A TRUE STATEMENT ABOUT THE INFOR	58	63	3
67	JOE HAD THREE TEST SCORES OF 78	61	80	4
132	A TEAM SCORES AN AVERAGE OF 3 POINTS PER GAME OVER	70	83	4

MEASUREMENT

Item ID	Short Text	p-value	OTL %	Sub-Area
166	WHAT IS THE SURFACE AREA OF THIS SOLID RECTANGULAR	10	33	4
168	A SOLID PLASTIC CUBE WITH EDGES 1 CM LONG WEIGHS 1	11	37	4
71	THE RECTANGLE SHOWN ABOVE IS CUT ALONG THE DOTTED	13	40	4
136	WHAT IS THE CAPACITY OF A CUBIC CONTAINER 10 CM BY	16	63	4
37	THE TOTAL AREA OF THE TWO TRIANGLES IS	18	43	4
70	WHAT IS THE AREA OF THE ABOVE PARALLELOGRAM?	21	67	4
72	THE FIGURE ABOVE SHOWS A RECTANGULAR BOX. WHICH OF	21	57	3
100	2 METERS + 3 MILLIMETERS IS EQUAL TO	21	67	1
38	ON THE ABOVE SCALE THE READING INDICATED BY THE AR	22	67	2
104	MICHAEL HAS A LARGE NUMER OF WOODED BLOCKS WHICH A	22	43	4
165	WHICH OF THE FOLLOWING IS THE CLOSEST APPROX TO THE	23	90	3
36	WHICH OF THE FOLLOWING IS ... TO THE WEIGHT OF A N	24	60	1
134	EACH OF THE SMALL SQUARES IN THE FIGURE IS 1 SQUARE	24	37	2

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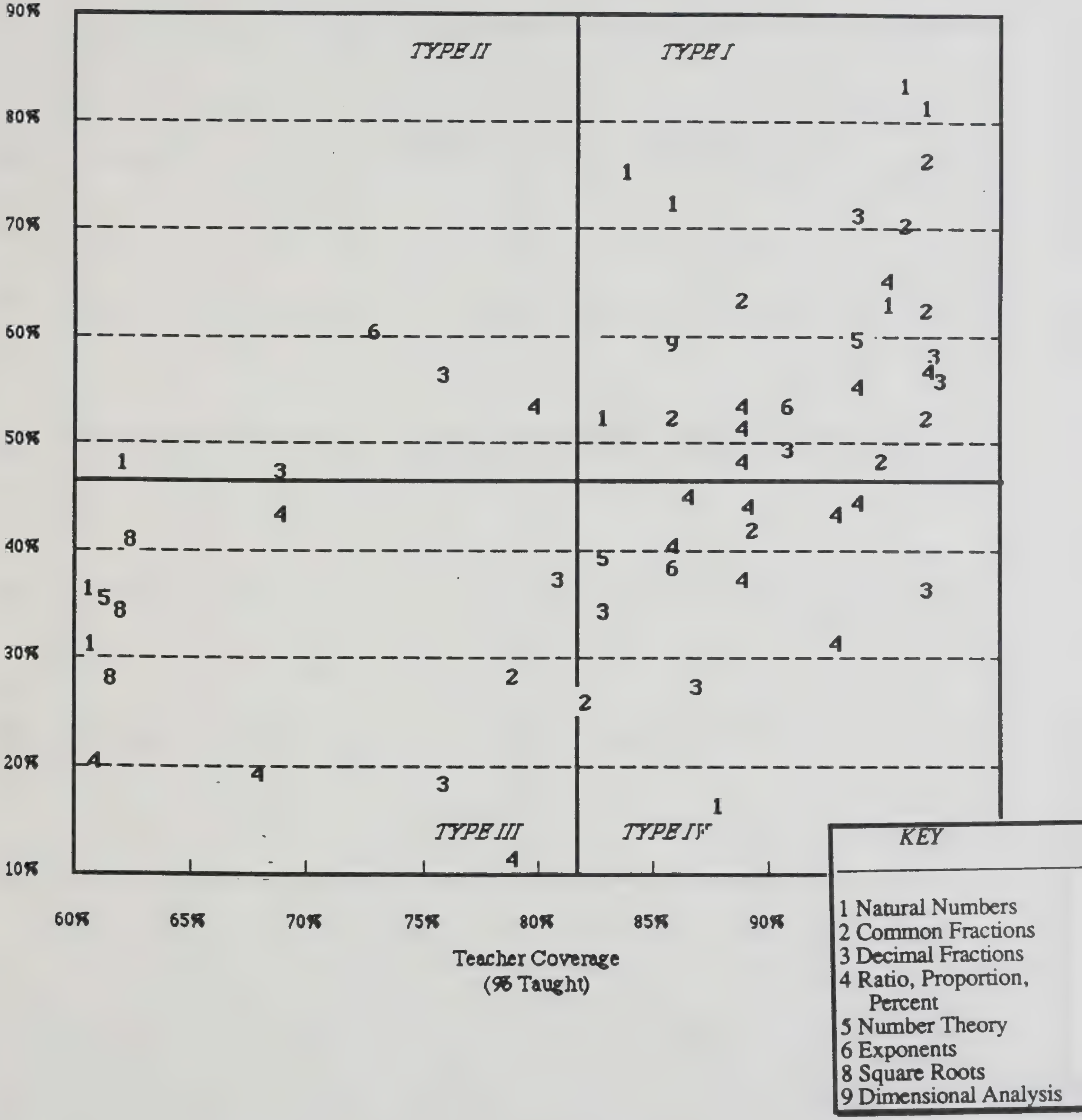
* Note: Items are ordered by p-value.

194	WHAT IS THE AREA OF TRIANGLE PQR?	24	50	4
102	THE MEASURE OF THE ANGLE SHOWN IS NEAREST TO	25	57	2
40	THERE IS A BRASS PLATE OF THE SHAPE AND DIMENSIONS	25	30	4
164	ACCORDING TO THE SCALE SHOWN THE LENGTH OF SIDE BC	26	80	2
133	HOW MANY PIECES OF PIPE EACH 20 METERS LONG WOULD	28	67	1
103	A SQUARE IS REMOVED FROM THE RECTANGLE AS SHOWN.	28	53	4
39	WHAT IS THE VOLUME OF A RECTANGULAR BOX WITH INTER	30	53	4
135	THE LENGTH OF A BOX WAS MEASURED AND FOUND TO BE 9	33	50	3
167	THE AREA OF THE SHADED FIGURE	36	63	2
199	THE AREA OF THE SHADED CIRCLE IS WHAT PART OF THE	43	30	4
101	A 15 CENTIMETER PIECE IS CUT FROM A RIBBON 1 METER	47	80	1
68	THE DISTANCE BETWEEN TWO TOWNS IS USUALLY MEASURED	50	77	1
69	THE LENGTH OF AB IS 1 UNIT. WHICH IS THE BEST ESTI	69	67	2

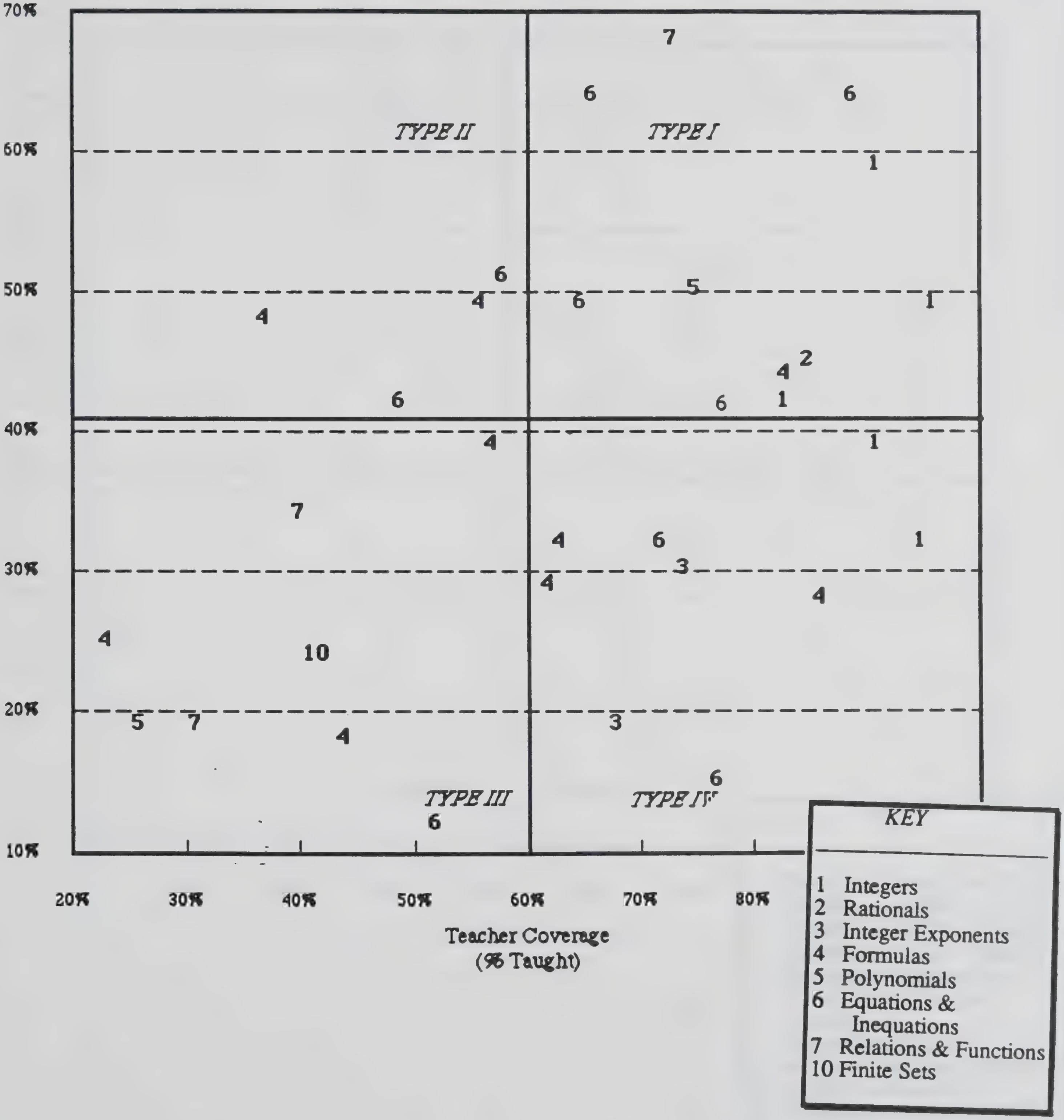
United States
Population A

Arithmetic:
Typical Classes



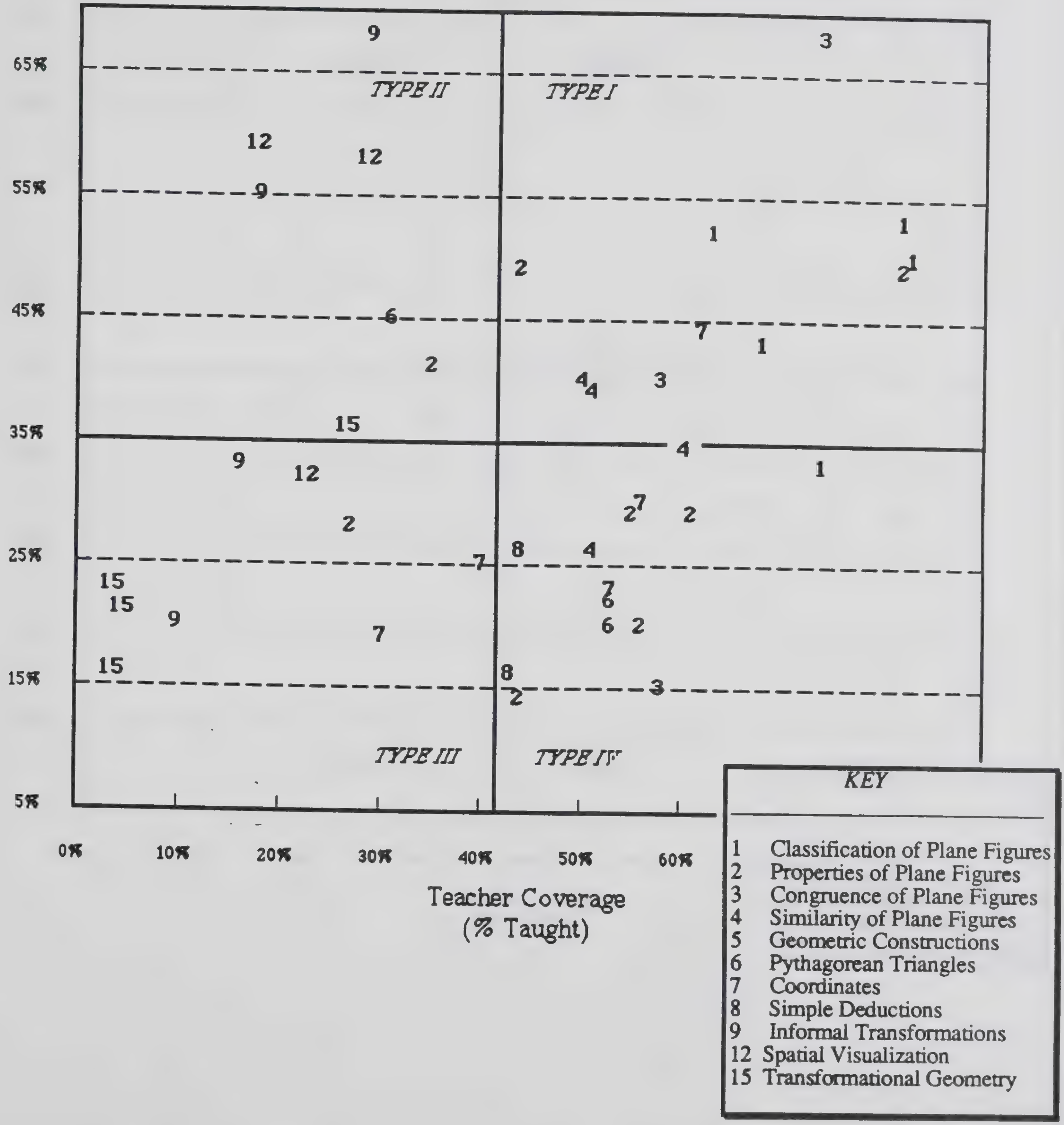
United States
Population A

Algebra:
Typical Classes



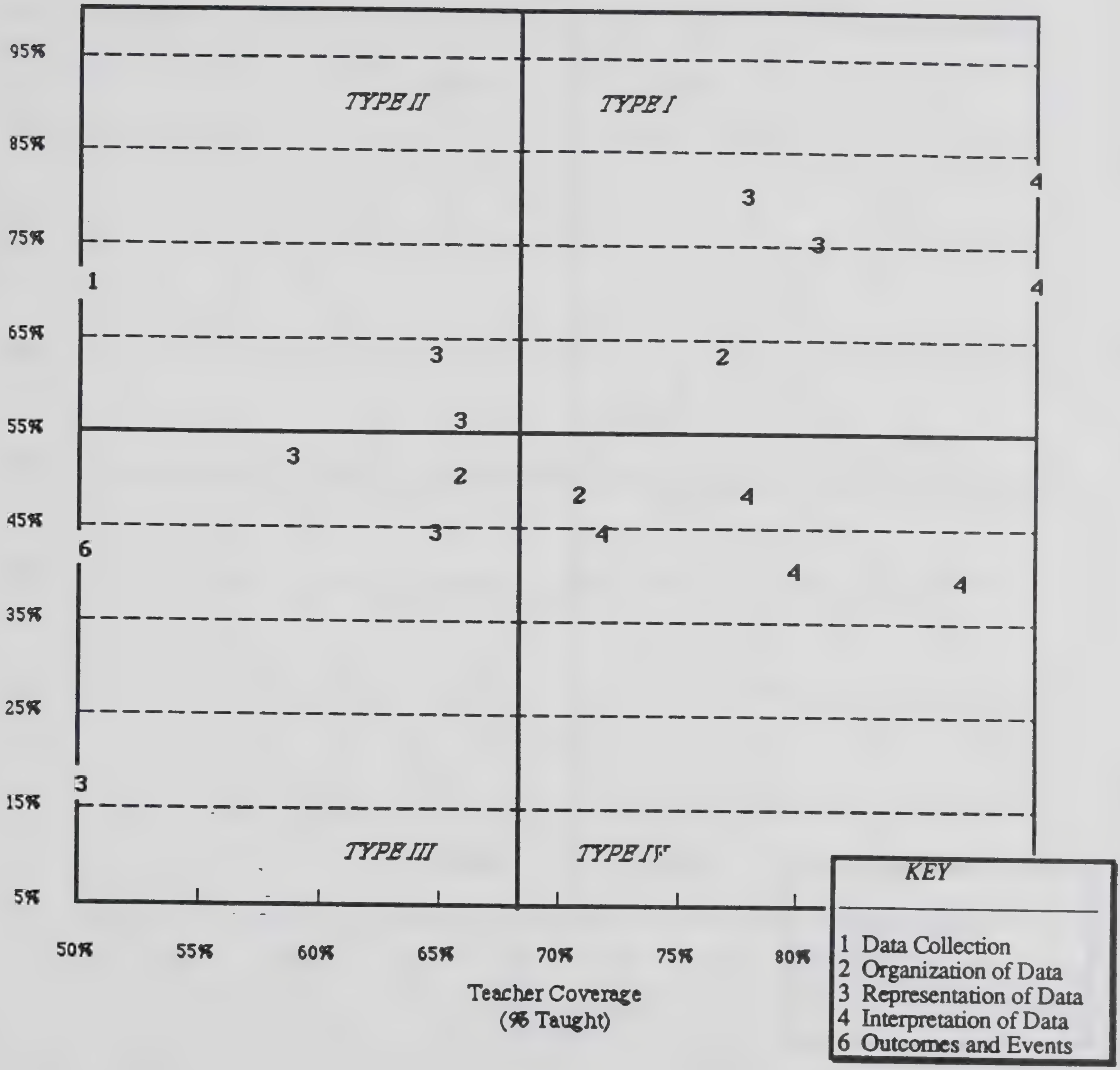
United States
Population A

Geometry:
Typical Classes



United States
Population A

Statistics:
Typical Classes



United States
Population A

Measurement:
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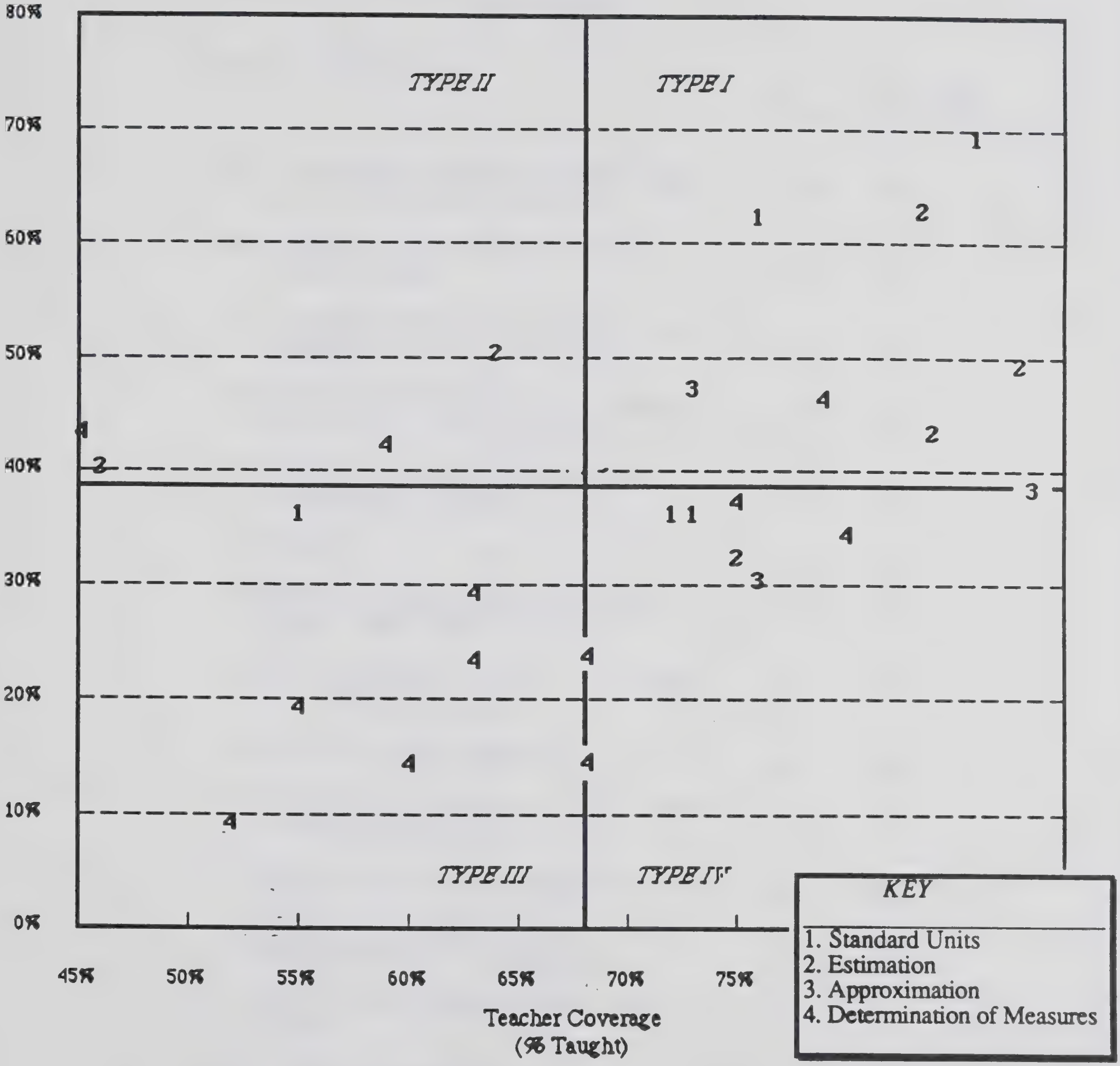

POPULATION A
TYPICAL CLASSES

ARITHMETIC

Item ID	Short Text	p-value	OTL %	Sub-Area
191	THE PRICE OF AN ARTICLE WAS $100. THE PRICE WAS FI	11	78	4
105	WHICH OF THE FOLLOWING IS (ARE) TRUE?	16	87	1
78	A RUNNER RAN 3000 METRES IN EXACTLY 8 MNS. WHAT WAS	18	75	3
180	$150 IS DIVIDED IN THE RATIO OF 2 TO 3. THE SMALLER	19	67	4
142	THE TABLE ABOVE SHOWS THE VALUES OF X AND Y	20	60	4
81	SINCE 4 * 9 = 36	26	52	8
76	FOUR 1-LITER BOWLS OF ICE CREAM WERE SET OUT AT A	26	81	2
45	THE VALUE OF 0.2131 * 0.02958 IS APPROXIMATELY	27	86	3
43	WHICH OF THE POINTS A	28	78	2
74	(TRIANGULAR ARRAY OF 1'S) WHAT IS THE SUM OF THE 5	31	19	1
179	WHAT IS 20 AS A PERCENT OF 80?	31	92	4
6	ALEXANDRA WALKED FROM RIVERVIEW TO BRIDGEPORT	34	82	3
11	WHAT IS THE SQUARE ROOT OF 12 * 75?	34	49	8
140	7 3/20 IS EQUAL TO	36	96	3

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* Note: Items are ordered by p-value.

144	ONE BELL RINGS EVERY 8 MINUTES, A SECOND BELL	36	40	5
184	THE LARGE SQUARE HAS AREA 1 SQUARE UNIT. THE AREA	37	80	3
79	A PAINTER IS TO MIX GREEN AND YELLOW PAINT IN THE	37	88	4
2	MATCHSTICKS ARE ARRANGED AS FOLLOWS. IF THE PATTERN	37	30	1
112	3.23 * 10**5 IS EQUAL TO	38	85	6
111	WHICH OF THE FOLLOWING EQUALS 7 * (3 + 9)?	39	82	5
145	THE SQUARE ROOT OF 75 IS BETWEEN	40	54	8
110	IN A SCHOOL ELECTION WITH THREE CANDIDATES	40	85	4
44	THERE ARE 35 STUDENTS IN A CLASS. 1/5 OF THEM COME	42	88	2
177	CANDIDATE A RECEIVED 70 PERCENT OF THE VOTES CAST	43	92	4
192	A CAR TAKES 15 MINUTES TO TRAVEL 10 KILOMETERS. WH	43	68	4
8	IN A SCHOOL OF 800 PUPILS	43	88	4
46	20% OF 125 IS EQUAL TO	44	93	4
9	30 IS 75% OF WHAT NUMBER?	46	87	4
141	THE SPEED OF SOUND IS APPROXIMATELY 340 METERS PER	47	68	3
106	PETER AND PAUL DECIDED TO START SAVING MONEY. PETER	48	52	1
188	THE PICTURE SHOWS SOME BLACK AND SOME WHITE MARBLE	48	94	2
190	CLOTH IS SOLD BY THE SQUARE METER. IF 6 SQUARE MET	48	88	4
7	(847.36) IN THE NUMBER IN THE BOX	49	90	3

47	IF THE RATIO OF 2 TO 5 EQUALS THE RATIO OF N TO 10	51	88	4
3	2/5 + 3/8 IS EQUAL TO	52	96	2
107	1 2/5 - 1/2 IS EQUAL TO	52	96	2
75	IN THE FIGURE THE LITTLE SQUARES ARE ALL THE SAME	52	85	2
137	WHICH OF THE FOLLOWING OPERATIONS WITH WHOLE NUMBER	52	82	1
143	IF THERE ARE 300 CALORIES IN 100 GRAMS OF A CERTAIN	53	88	4
10	THE VALUE OF 2**3 * 3**2 IS 10*N. THEN N IS EQUAL	53	90	6
181	A MODEL BOAT IS BUILD TO SCALE SO THAT IT IS 1/10	53	79	4
189	1/5 IS EQUAL TO	55	93	4
77	THE POSITION ON THE SCALE INDICATED BY THE ARROW I	56	75	3
183	74.236 ROUNDED TO THE NEAREST HUNDREDTH IS	57	96	3
108	.004)24.56 IN THE DIVISION ABOVE	57	96	3
5	0.40 * 6.38 IS EQUAL TO	58	96	3
139	(3/5)/(2/7) IS EQUAL TO	58	96	2
182	WHICH OF THE FOLLOWING IS THIRTY-SEVEN THOUSANDTHS	59	96	3
146	FIND THE SUM: 3 WEEKS 5 DAYS + 9 WEEKS 6 DAYS	59	85	9
80	WHICH OF THESE NUMBERS IS A PRIME NUMBER?	60	93	5
48	IF 10**2 * 10**3 = 10**N THEN N IS EQUAL TO	60	72	6
187	3/8 - 1/5 IS EQUAL TO	62	96	2
185	WHICH IS THE CLOSEST ESTIMATE FOR THE ANSWER TO 5	63	88	2

1	(22 * 18) - (47 + 59) IS EQUAL TO	64	94	1
178	72% IS EQUAL TO	65	94	4
186	1/2 * 1/4 IS EQUAL TO	70	95	2
109	IN A DISCUS-THROWING COMPETITION	71	93	3
138	A GROUP OF CHILDREN WAS DIVIDED INTO 7 TEAMS WITH	72	85	1
42	WHICH OF THE FOLLOWING IS EQUAL TO A QUARTER OF A	75	83	1
4	WHICH OF THE FOLLOWING IS A PAIR OF EQUIVALENT FRA	76	96	2
73	162 * 47 IS EQUAL TO	81	96	1
41	1054 - 865	83	95	1

ALGEBRA

Item ID	Short Text	p-value	OTL %	Sub-Area
151	IF 5X + 4 = 4X - 31	12	50	6
87	THE DAVIS FAMILY TOOK A CAR TRIP FROM ANABRU THROU	15	75	6
15	SIMPLIFY: 5X + 3Y + 2X - 4Y	18	42	4
88	A/15 - B/5 IS EQUAL TO	19	24	5
55	FOR THE TABLE SHOWN, A FORMULA THAT COULD RELATE	19	29	7
172	FIND THE VALUE OF N. N = 10**3 + 10**1 + 10**0 + 1	19	66	3
120	THE SYMBOL P INTERSECT Q REPRESENTS THE INTERSECTI	24	39	10
16	SODA COSTS A CENTS FOR EACH BOTTLE	25	21	4
115	IF X = -3, THE VALUE OF -3X EQUALS	28	84	4
148	WHICH OF THE FOLLOWING IS FALSE WHEN A	29	60	4
84	0.00046 IS EQUAL TO	30	72	3
113	(-6) - (-8) IS EQUAL TO	32	93	1
18	THE ERROR IN THE ABOVE REASONING	32	70	6
116	IF X = Y = Z = 1, THEN (X-Z)/(X+Y) EQUALS	32	61	4
19	THE TABLE BELOW COMPARES THE HEIGHT FROM WHICH A B	34	38	7
195	A NUMBER X IS MULTIPLIED BY ITSELF AND THE RESULT	39	55	4
13	THE AIR TEMPERATURE AT THE	39	89	1

	FOOT OF A MOUNTAN IS 31			
86	IF 4X/12 = 0	41	76	6
82	THE SET OF INTEGERS LESS THAN 5 IS REPRESENTED ON	42	81	1
118	(X/2) < 7 IS EQUIVALENT TO	42	47	6
85	IF Y DOLLARS ARE SHARED EQUALLY AMONG FOUR BOYS	44	81	4
14	WHICH OF THE FOLLOWING SEQUENCES OF NUMBERS IS IN	45	83	2
149	A SHOPKEEPER HAS X KG OF TEA IN STOCK. HE SELLS 15	48	35	4
52	THE COST OF PRINTING GREETING CARDS CONSISTS OF A	49	54	4
196	THE SENTENCE 'A NUMBER X DECREASED BY 6 IS LESS TH	49	63	6
12	(-2) * (-3) IS EQUAL TO	49	94	1
53	WHEN X = 2	50	73	5
117	'SIX TIMES A CERTAIN NUMBER (CALL IT Q) EQUALS THE	51	56	6
49	-5(6 - 4) IS EQUAL TO	59	89	1
17	IF P = LW AND IF P = 12 AND L = 3	64	87	6
54	WHICH EQUATION IS TRUE FOR ALL VALUES OF N?	64	64	6
152	A BOWLING BALL TRAVELS 4 METERS PER SECOND.	68	71	7

GEOMETRY

Item ID	Short Text	p-value	OTL %	Sub-Area
59	THREE STRAIGHT LINES INTERSECT AS SHOWN IN THE DIA	14	42	2
25	THE TRIANGLES SHOWN ABOVE ARE CONGRUENT. THE MEASU	15	56	3
173	U AND V ARE TWO VECTORS. WHICH FIGURE BELOW REPRES	16	1	15
62	IN THE ABOVE RECTANGLE THE MEASURE OF ANGLES ROQ I	16	41	8
29	ONE OF THE FOLLOWING POINTS CAN BE JOINED TO THE P	19	28	7
63	PQRS IS A RECTANGLE. ITS IMAGE AFTER A TRANSFORMAT	20	8	9
27	(RIGHT TRIANGLE WITH 2 SIDES GIVE) WHAT IS THE VAL	20	51	6
123	IN A QUADRILATERAL, TWO OF THE ANGLES ARE 110 DEGRE	20	54	2
171	IF D IS THE DIRECTION OF PROJECTION AND A IS THE A	21	2	15
93	WHICH OF THESE IS A CORRECT STATEMENT FOR THIS TRI	22	51	6
175	ON A NUMBER LINE TWO POINTS A AND B ARE GIVEN. THE	23	51	7
170	GIVEN VECTOR V AND VECTOR W AS SHOWN IN THE FIGURE	23	1	15
126	THE STRAIGHT LINE JOINING THE POINTS (2,3) AND	25	38	7
125	IF TWO TRIANGLES ARE SIMILAR, WHICH OF THE FOLLOWIN	26	49	4

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* Note: Items are ordered by p-value.

127	IN THE ABOVE DIAGRAM, TRIANGLES ABD AND DEF ARE	26	42	8
23	THE LENGTH OF THE CIRCUMFERENCE OF THE CIRCLE WITH	28	25	2
58	LINES AB AND CD ARE PARALLEL. TWO ANGLES WHOSE MEA	29	59	2
128	IF, IN A GIVEN FIGURE,PQ AND RS ARE INTERSECTING	29	53	2
169	SUPPOSE YOU START AT POINT M(-1,-1), MOVE A DISTANC	30	54	7
198	WHICH OF THE FOLLOWING PATTERNS CAN BE FOLDED ALON	32	20	12
96	TRIANGLE ABC AND TRIANGLE A'B'C' ARE CONGRUENT AND	33	14	9
21	A QUADRILATERAL MUST BE A PARALLELOGRAM IF IT HAS	33	72	1
26	ON LEVEL GROUND, A BOY 5 UNITS TALL CASTS A SHADOW	35	58	4
174	A HALF-TURN ABOUT O IS APLIED TO THE FIGURE ABOVE.	36	24	15
156	TRIANGLES PQR AND STU ARE SIMILAR. HOW LONG IS SU?	39	49	4
24	IF SEGMENT PQ WERE DRAWN FOR EACH FIGURE SHOWN BELO	40	56	3
197	THE PICTURE ABOVE SHOWS HOW PEDRO USED A SHORT TREE	40	48	4
90	THE LINE M IS A LINE OF SYMMETRY FOR FIGURE ABCDE.	41	33	2
57	THE FIGURE QRST IS A SQUARE AND PQT AN EQUILATERAL	43	66	1
28	WHAT ARE THE COORDINATES OF POINT P?	44	60	7
193	(TRAPEZOID WITH DIMENSIONS) X IS EQUAL TO	45	29	6
155	IF AB IS A STRAIGHT LINE, WHAT IS THE MEASURE IN	49	42	2

122	(TRIANGLE WITH 2 ANGLES GIVEN) X IS EQUAL TO	49	80	2
121	WHICH OF THE INDICATED ANGLES IS ACUTE?	50	81	1
22	AB, CD AND EF ARE INTERSECTING STRAIGHT LINES.	52	61	1
89	AB // DC AND AD // BC. QUADRILATERAL ABCD IS A	53	80	1
158	TRIANGLE PQT CAN BE ROTATED (TURNED) ONTO TRIANGLE	55	16	9
31	THE DIAGRAM SHOWS A CARDBOARD CUBE WHICH HAS BEEN	58	26	12
159	THE FIGURE ABOVE SHOWS A WOODEN CUBE WITH ONE CORN	59	15	12
91	ONE OF THE FOLLOWING FIGURES IS CONGRUENT WITH THE	68	72	3
30	IN WHICH DIAGRAM BELOW IS THE SECOND FIGURE THE IM	68	27	9

STATISTICS

Item ID	Short Text	p-value	OTL %	Sub-Area
129	THERE ARE 7M GIRLS UNDER THE AGE OF 21	17	27	3
35	THE ARITHMETIC MEAN (AVERAGE) OF: 1.50	39	86	4
130	THE WEIGHT GAIN FROM 6 TO 10 MONTHS WAS	40	79	4
163	THERE ARE FIVE BLACK BUTTONS AND ONE RED BUTTON IN	43	38	6
161	HOW MUCH LONGER DOES IT TAKE FOR CAR B TO GO 50 KI	44	64	3
99	IN THE GRAPH RAINFALL IS PLOTTED FOR 13 WEEKS.	44	71	4
162	THE GRAPH SHOWS THE TIME OF TRAVEL BY PUPILS FROM	48	77	4
97	A TABLE SHOWS SCORES FOR A CLASS ON A 10-POINT TES	48	70	2
131	THE PETALS ON 100 FLOWERS OF DIFFERENT KINDS WERE	50	65	2
66	THE GRAPH SHOWS THE DISTANCE TRAVELED BY A TRACTOR	52	58	3
160	THREE HOURS AFTER STARTING CAR A IS HOW MANY KILOME	56	65	3
98	HERE IS A TABLE OF DATA AND A GRAPH OF THE SAME DA	63	64	3
32	HERE IS A TABLE THAT SHOWS THE NUMBER OF TREES PLA	63	76	2

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* Note: Items are ordered by p-value.

65	YOU WISH TO KNOW ABOUT THE POPULARITY OF THE SOFT-	70	35	1
67	JOE HAD THREE TEST SCORES OF 78	71	90	4
34	WHICH OF THESE IS A TRUE STATEMENT ABOUT THE INFOR	75	80	3
33	THE CIRCLE GRAPH SHOWS THE PROPORTION OF VARIOUS G	80	77	3
132	A TEAM SCORES AN AVERAGE OF 3 POINTS PER GAME OVER	82	94	4

MEASUREMENT

Item ID	Short Text	p-value	OTL %	Sub-Area
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136	WHAT IS THE CAPACITY OF A CUBIC CONTAINER 10 CM BY	14	67	4
166	WHAT IS THE SURFACE AREA OF THIS SOLID RECTANGULAR	14	59	4
71	THE RECTANGLE SHOWN ABOVE IS CUT ALONG THE DOTTED	19	54	4
40	THERE IS A BRASS PLATE OF THE SHAPE AND DIMENSIONS	23	62	4
37	THE TOTAL AREA OF THE TWO TRIANGLES IS	24	67	4
194	WHAT IS THE AREA OF TRIANGLE PQR?	29	62	4
72	THE FIGURE ABOVE SHOWS A RECTANGULAR BOX. WHICH OF	30	75	3
102	THE MEASURE OF THE ANGLE SHOWN IS NEAREST TO	32	74	2
70	WHAT IS THE AREA OF THE ABOVE PARALLELOGRAM?	34	79	4
36	WHICH OF THE FOLLOWING IS ... TO THE WEIGHT OF A N	36	54	1
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133	HOW MANY PIECES OF PIPE EACH 20 METERS LONG WOULD	36	72	1
103	A SQUARE IS REMOVED FROM THE RECTANGLE AS SHOWN.	37	74	4

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* Note: Items are ordered by p-value.

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134	EACH OF THE SMALL SQUARES IN THE FIGURE IS 1 SQUARE	40	45	2
104	MICHAEL HAS A LARGE NUMER OF WOODED BLOCKS WHICH A	42	58	4
38	ON THE ABOVE SCALE THE READING INDICATED BY THE AR	43	83	2
39	WHAT IS THE VOLUME OF A RECTANGULAR BOX WITH INTER	46	78	4
135	THE LENGTH OF A BOX WAS MEASURED AND FOUND TO BE 9	47	72	3
164	ACCORDING TO THE SCALE SHOWN THE LENGTH OF SIDE BC	49	87	2
167	THE AREA OF THE SHADED FIGURE	50	63	2
199	THE AREA OF THE SHADED CIRCLE IS WHAT PART OF THE	61	35	4
101	A 15 CENTIMETER PIECE IS CUT FROM A RIBBON 1 METER	62	75	1
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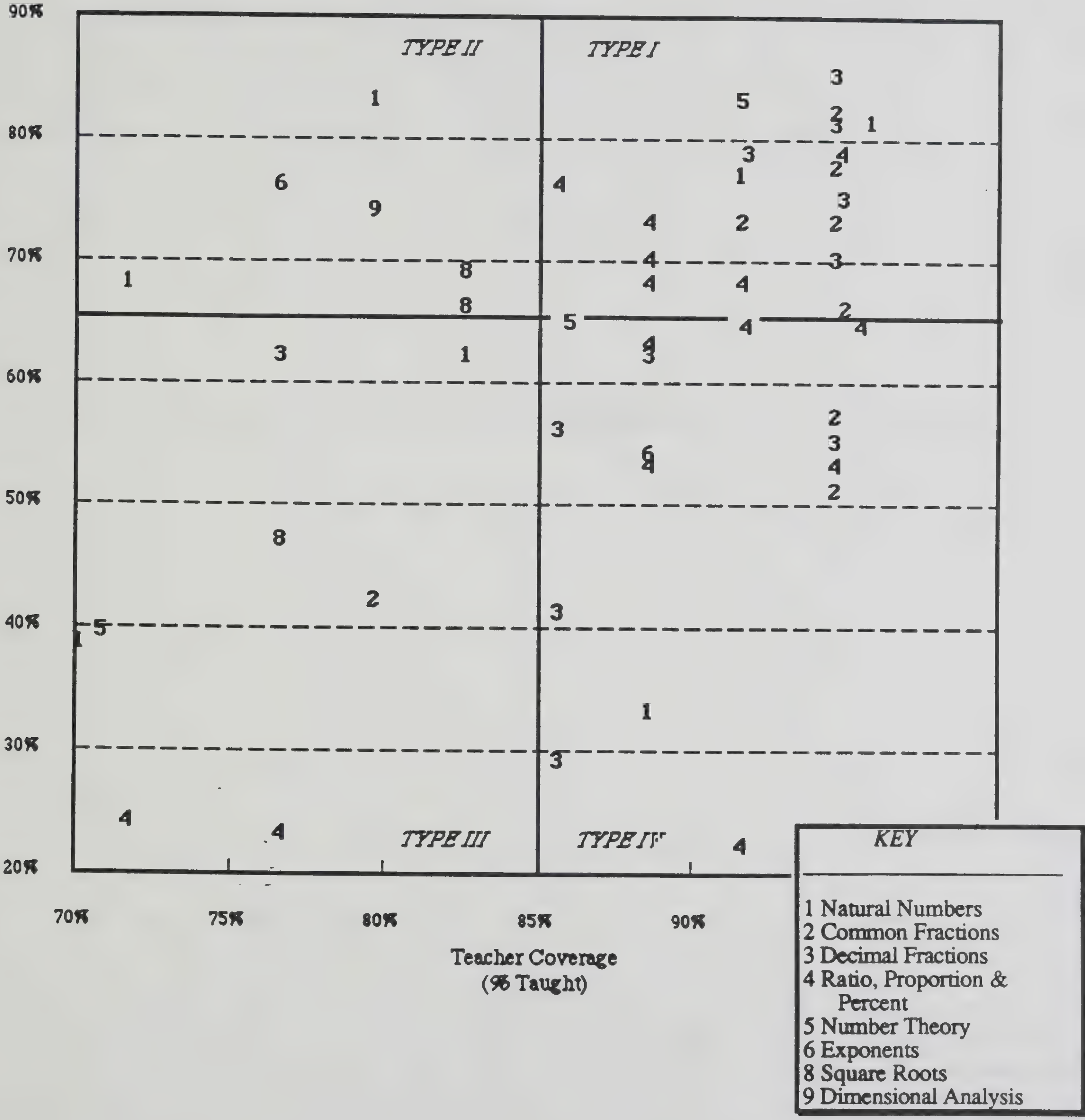
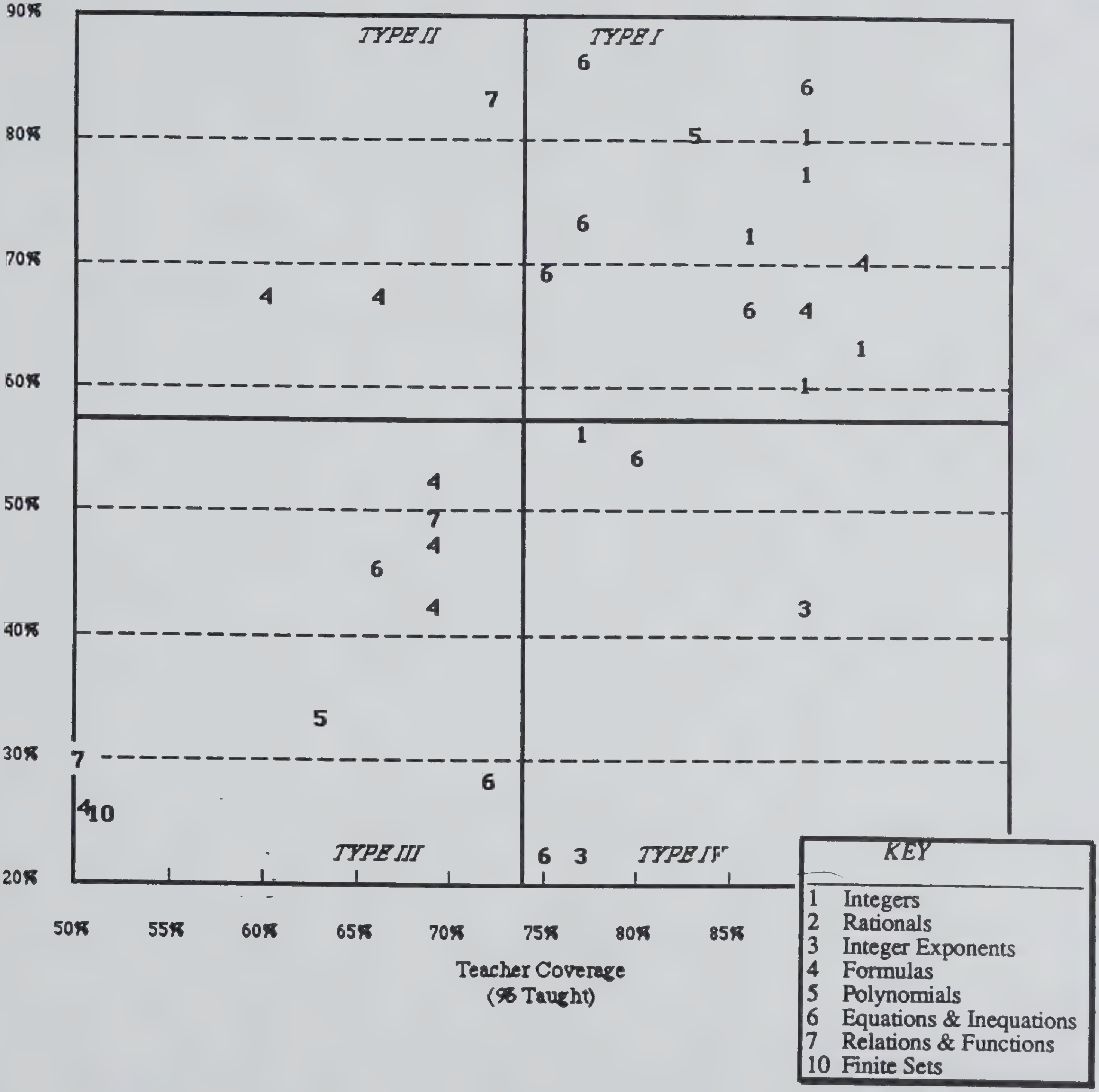
United States
Population A

Arithmetic:
Enriched Classes



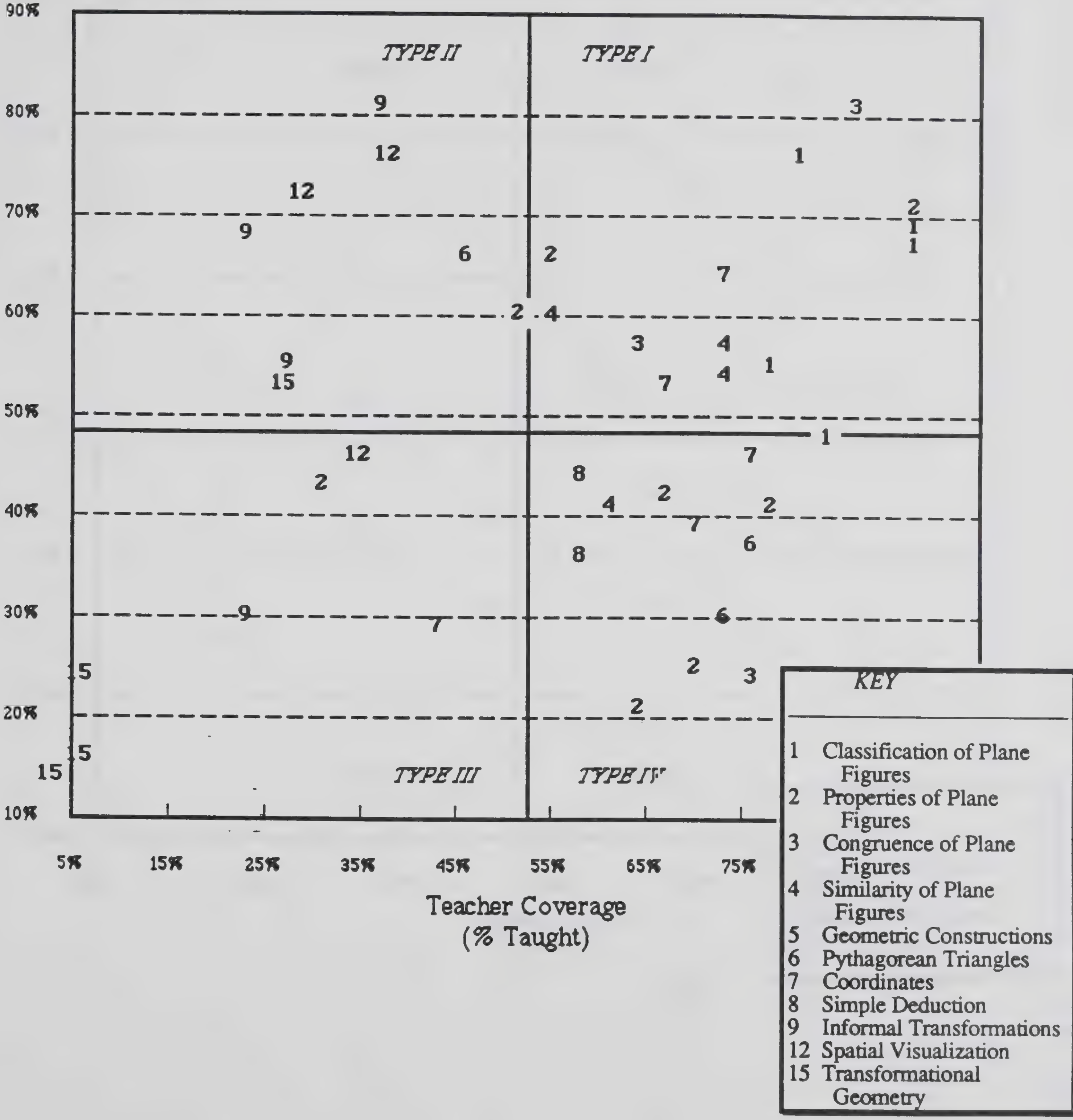
United States
Population A

Algebra:
Enriched Classes



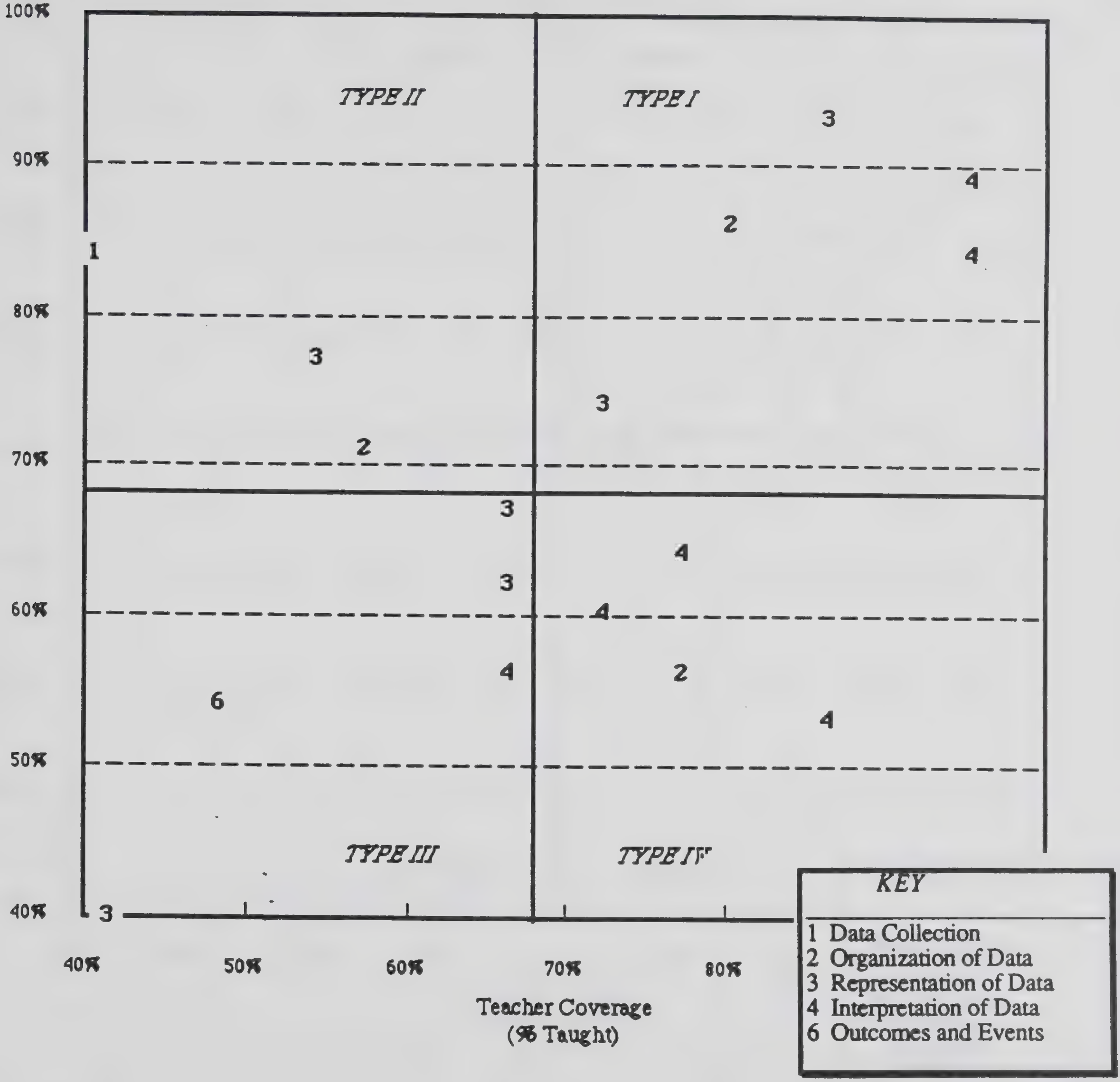
United States
Population A

Geometry:
Enriched Classes



United States
Population A

Statistics:
Enriched Classes



United States
Population A

Measurement:
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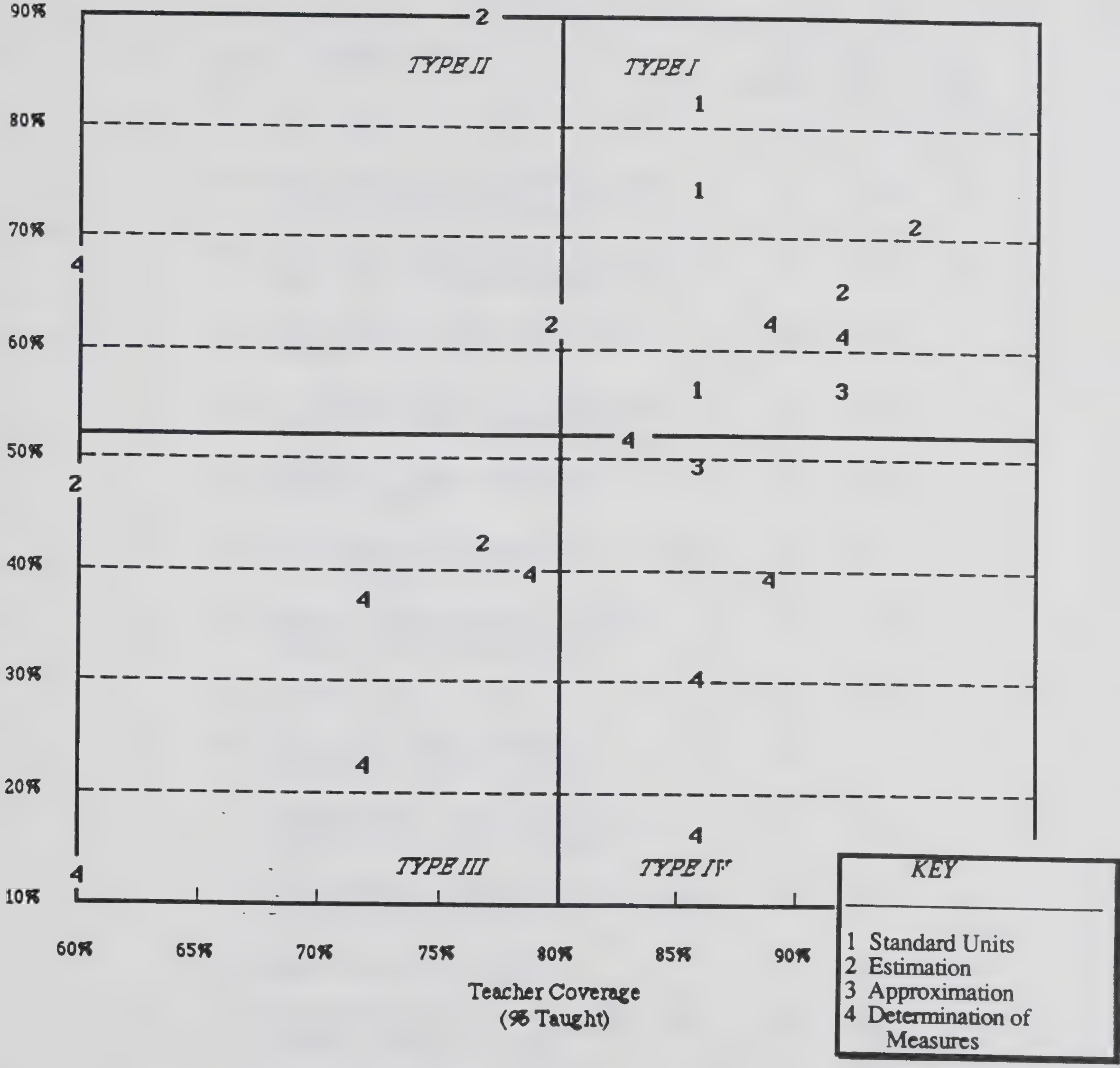

POPULATION A:
ENRICHED CLASSES

ARITHMETIC

Item ID	Short Text	p-value	OTL %	Sub-Area
191	THE PRICE OF AN ARTICLE WAS $100. THE PRICE WAS FI	22	91	4
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81	SINCE 4 * 9 = 36	47	76	8
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48	IF 10**2 * 10**3 = 10**N THEN N IS EQUAL TO	76	76	6
182	WHICH OF THE FOLLOWING IS THIRTY-SEVEN THOUSANDTHS	76	94	3
181	A MODEL BOAT IS BUILD TO SCALE SO THAT IT IS 1/10	76	85	4
186	1/2 * 1/4 IS EQUAL TO	76	94	2
1	(22 * 18) - (47 + 59) IS EQUAL TO	78	91	1
3	2/5 + 3/8 IS EQUAL TO	78	94	2
139	(3/5)/(2/7) IS EQUAL TO	79	91	2
7	(847.36) IN THE NUMBER IN THE BOX	79	91	3
178	72% IS EQUAL TO	79	94	4
108	.004)24.56 IN THE DIVISION ABOVE	81	94	3
187	3/8 - 1/5 IS EQUAL TO	82	94	2

185	WHICH IS THE CLOSEST ESTIMATE FOR THE ANSWER TO 5	82	94	2
138	A GROUP OF CHILDREN WAS DIVIDED INTO 7 TEAMS WITH	83	79	1
80	WHICH OF THESE NUMBERS IS A PRIME NUMBER?	83	91	5
109	IN A DISCUS-THROWING COMPETITION	85	94	3
42	WHICH OF THE FOLLOWING IS EQUAL TO A QUARTER OF A	87	94	1
41	1054 - 865	89	94	1
4	WHICH OF THE FOLLOWING IS A PAIR OF EQUIVALENT FRA	89	94	2
73	162 * 47 IS EQUAL TO	94	94	1

ALGEBRA

Item ID	Short Text	p-value	OTL %	Sub-Area
87	THE DAVIS FAMILY TOOK A CAR TRIP FROM ANABRU THROU	22	74	6
172	FIND THE VALUE OF N. N = 10**3 + 10**1 + 10**0 + 1	22	76	3
120	THE SYMBOL P INTERSECT Q REPRESENTS THE INTERSECTI	25	50	10
151	IF 5X + 4 = 4X - 31	28	71	6
88	A/15 - B/5 IS EQUAL TO	33	62	5
55	FOR THE TABLE SHOWN, A FORMULA THAT COULD RELATE	37	47	7
16	SODA COSTS A CENTS FOR EACH BOTTLE	39	47	4
84	0.00046 IS EQUAL TO	42	88	3
15	SIMPLIFY: 5X + 3Y + 2X - 4Y	42	68	4
118	(X/2) < 7 IS EQUIVALENT TO	45	65	6
148	WHICH OF THE FOLLOWING IS FALSE WHEN A	47	68	4
19	THE TABLE BELOW COMPARES THE HEIGHT FROM WHICH A B	49	68	7
116	IF X = Y = Z = 1, THEN (X-Z)/(X+Y) EQUALS	52	68	4
18	THE ERROR IN THE ABOVE REASONING	54	79	6
52	THE COST OF PRINTING GREETING CARDS CONSISTS OF A	56	76	4

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* Note: Items are ordered by p-value.

13	THE AIR TEMPERATURE AT THE FOOT OF A MOUNTAN IS 31	60	88	1
113	(-6) - (-8) IS EQUAL TO	63	91	1
115	IF X = -3, THE VALUE OF -3X EQUALS	66	88	4
86	IF 4X/12 = 0	66	85	6
149	A SHOPKEEPER HAS X KG OF TEA IN STOCK. HE SELLS 15	67	59	4
195	A NUMBER X IS MULTIPLIED BY ITSELF AND THE RESULT	67	65	4
196	THE SENTENCE 'A NUMBER X DECREASED BY 6 IS LESS TH	69	74	6
85	IF Y DOLLARS ARE SHARED EQUALLY AMONG FOUR BOYS	70	91	4
82	THE SET OF INTEGERS LESS THAN 5 IS REPRESENTED ON	72	85	1
14	WHICH OF THE FOLLOWING SEQUENCES OF NUMBERS IS IN	73	76	2
117	'SIX TIMES A CERTAIN NUMBER (CALL IT Q) EQUALS THE	73	76	6
12	(-2) * (-3) IS EQUAL TO	77	88	1
49	-5(6 - 4) IS EQUAL TO	80	88	1
53	WHEN X = 2	80	82	5
152	A BOWLING BALL TRAVELS 4 METERS PER SECOND.	83	71	7
17	IF P = LW AND IF P = 12 AND L = 3	84	88	6
54	WHICH EQUATION IS TRUE FOR ALL VALUES OF N?	86	76	6

GEOMETRY

Item ID	Short Text	p-value	OTL %	Sub-Area
173	U AND V ARE TWO VECTORS. WHICH FIGURE BELOW REPRES	14	0	15
171	IF D IS THE DIRECTION OF PROJECTION AND A IS THE A	16	3	15
59	THREE STRAIGHT LINES INTERSECT AS SHOWN IN THE DIA	21	62	2
25	THE TRIANGLES SHOWN ABOVE ARE CONGRUENT. THE MEASU	24	74	3
170	GIVEN VECTOR V AND VECTOR W AS SHOWN IN THE FIGURE	24	3	15
123	IN A QUADRILATERAL, TWO OF THE ANGLES ARE 110 DEGRE	25	68	2
29	ONE OF THE FOLLOWING POINTS CAN BE JOINED TO THE P	29	41	7
63	PQRS IS A RECTANGLE. ITS IMAGE AFTER A TRANSFORMAT	30	21	9
27	(RIGHT TRIANGLE WITH 2 SIDES GIVE) WHAT IS THE VAL	30	71	6
62	IN THE ABOVE RECTANGLE THE MEASURE OF ANGLES ROQ I	36	56	8
93	WHICH OF THESE IS A CORRECT STATEMENT FOR THIS TRI	37	74	6
169	SUPPOSE YOU START AT POINT M(-1,-1), MOVE A DISTANC	39	68	7
125	IF TWO TRIANGLES ARE SIMILAR, WHICH OF THE FOLLOWIN	41	59	4
58	LINES AB AND CD ARE PARALLEL. TWO ANGLES WHOSE MEA	41	76	2

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* Note: Items are ordered by p-value.

128	IF, IN A GIVEN FIGURE,PQ AND RS ARE INTERSECTING	42	65	2
23	THE LENGTH OF THE CIRCUMFERENCE OF THE CIRCLE WITH	43	29	2
127	IN THE ABOVE DIAGRAM, TRIANGLES ABD AND DEF ARE	44	56	8
175	ON A NUMBER LINE TWO POINTS A AND B ARE GIVEN. THE	46	74	7
198	WHICH OF THE FOLLOWING PATTERNS CAN BE FOLDED ALON	46	32	12
21	A QUADRILATERAL MUST BE A PARALLELOGRAM IF IT HAS	48	82	1
126	THE STRAIGHT LINE JOINING THE POINTS (2,3) AND	53	65	7
174	A HALF-TURN ABOUT O IS APLIED TO THE FIGURE ABOVE.	53	24	15
96	TRIANGLE ABC AND TRIANGLE A'B'C' ARE CONGRUENT AND	54	24	9
26	ON LEVEL GROUND, A BOY 5 UNITS TALL CASTS A SHADOW	54	71	4
57	THE FIGURE QRST IS A SQUARE AND PQT AN EQUILATERAL	55	76	1
24	IF SEGMENT PQ WERE DRAWN FOR EACH FIGURE SHOWN BELO	57	62	3
156	TRIANGLES PQR AND STU ARE SIMILAR. HOW LONG IS SU?	57	71	4
90	THE LINE M IS A LINE OF SYMMETRY FOR FIGURE ABCDE.	60	50	2
197	THE PICTURE ABOVE SHOWS HOW PEDRO USED A SHORT TREE	60	53	4
28	WHAT ARE THE COORDINATES OF POINT P?	64	71	7
155	IF AB IS A STRAIGHT LINE, WHAT IS THE MEASURE IN	66	53	2
193	(TRAPEZOID WITH DIMENSIONS) X	66	44	6

	IS EQUAL TO			
89	AB // DC AND AD // BC. QUADRILATERAL ABCD IS A	67	91	1
158	TRIANGLE PQT CAN BE ROTATED (TURNED) ONTO TRIANGLE	68	21	9
121	WHICH OF THE INDICATED ANGLES IS ACUTE?	69	91	1
122	(TRIANGLE WITH 2 ANGLES GIVEN) X IS EQUAL TO	71	91	2
159	THE FIGURE ABOVE SHOWS A WOODEN CUBE WITH ONE CORN	72	26	12
22	AB, CD AND EF ARE INTERSECTING STRAIGHT LINES.	76	79	1
31	THE DIAGRAM SHOWS A CARDBOARD CUBE WHICH HAS BEEN	76	35	12
30	IN WHICH DIAGRAM BELOW IS THE SECOND FIGURE THE IM	81	35	9
91	ONE OF THE FOLLOWING FIGURES IS CONGRUENT WITH THE	81	85	3

STATISTICS

Item ID	Short Text	p-value	OTL %	Sub-Area
129	THERE ARE 7M GIRLS UNDER THE AGE OF 21	19	35	3
130	THE WEIGHT GAIN FROM 6 TO 10 MONTHS WAS	53	85	4
163	THERE ARE FIVE BLACK BUTTONS AND ONE RED BUTTON IN	54	47	6
97	A TABLE SHOWS SCORES FOR A CLASS ON A 10-POINT TES	56	76	2
99	IN THE GRAPH RAINFALL IS PLOTTED FOR 13 WEEKS.	56	65	4
35	THE ARITHMETIC MEAN (AVERAGE) OF: 1.50	60	71	4
161	HOW MUCH LONGER DOES IT TAKE FOR CAR B TO GO 50 KI	62	65	3
162	THE GRAPH SHOWS THE TIME OF TRAVEL BY PUPILS FROM	64	76	4
160	THREE HOURS AFTER STARTING CAR A IS HOW MANY KILOME	67	65	3
131	THE PETALS ON 100 FLOWERS OF DIFFERENT KINDS WERE	71	56	2
66	THE GRAPH SHOWS THE DISTANCE TRAVELED BY A TRACTOR	74	71	3
98	HERE IS A TABLE OF DATA AND A GRAPH OF THE SAME DA	77	53	3
65	YOU WISH TO KNOW ABOUT THE POPULARITY OF THE SOFT-	84	35	1
67	JOE HAD THREE TEST SCORES OF 78	84	94	4

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* Note: Items are ordered by p-value.

32	HERE IS A TABLE THAT SHOWS THE NUMBER OF TREES PLA	86	79	2
34	WHICH OF THESE IS A TRUE STATEMENT ABOUT THE INFOR	86	82	3
132	A TEAM SCORES AN AVERAGE OF 3 POINTS PER GAME OVER	89	94	4
33	THE CIRCLE GRAPH SHOWS THE PROPORTION OF VARIOUS G	93	85	3

MEASUREMENT

Item ID	Short Text	p-value	OTL %	Sub-Area
168	A SOLID PLASTIC CUBE WITH EDGES 1 CM LONG WEIGHS 1	12	50	4
136	WHAT IS THE CAPACITY OF A CUBIC CONTAINER 10 CM BY	16	85	4
166	WHAT IS THE SURFACE AREA OF THIS SOLID RECTANGULAR	22	71	4
37	THE TOTAL AREA OF THE TWO TRIANGLES IS	30	85	4
71	THE RECTANGLE SHOWN ABOVE IS CUT ALONG THE DOTTED	37	71	4
194	WHAT IS THE AREA OF TRIANGLE PQR?	39	88	4
133	HOW MANY PIECES OF PIPE EACH 20 METERS LONG WOULD	39	88	1
40	THERE IS A BRASS PLATE OF THE SHAPE AND DIMENSIONS	40	79	4
36	WHICH OF THE FOLLOWING IS ... TO THE WEIGHT OF A N	41	76	1
102	THE MEASURE OF THE ANGLE SHOWN IS NEAREST TO	42	76	2
70	WHAT IS THE AREA OF THE ABOVE PARALLELOGRAM?	47	88	4
134	EACH OF THE SMALL SQUARES IN THE FIGURE IS 1 SQUARE	48	56	2
72	THE FIGURE ABOVE SHOWS A RECTANGULAR BOX. WHICH OF	49	85	3
104	MICHAEL HAS A LARGE NUMER OF WOODED BLOCKS WHICH A	52	82	4

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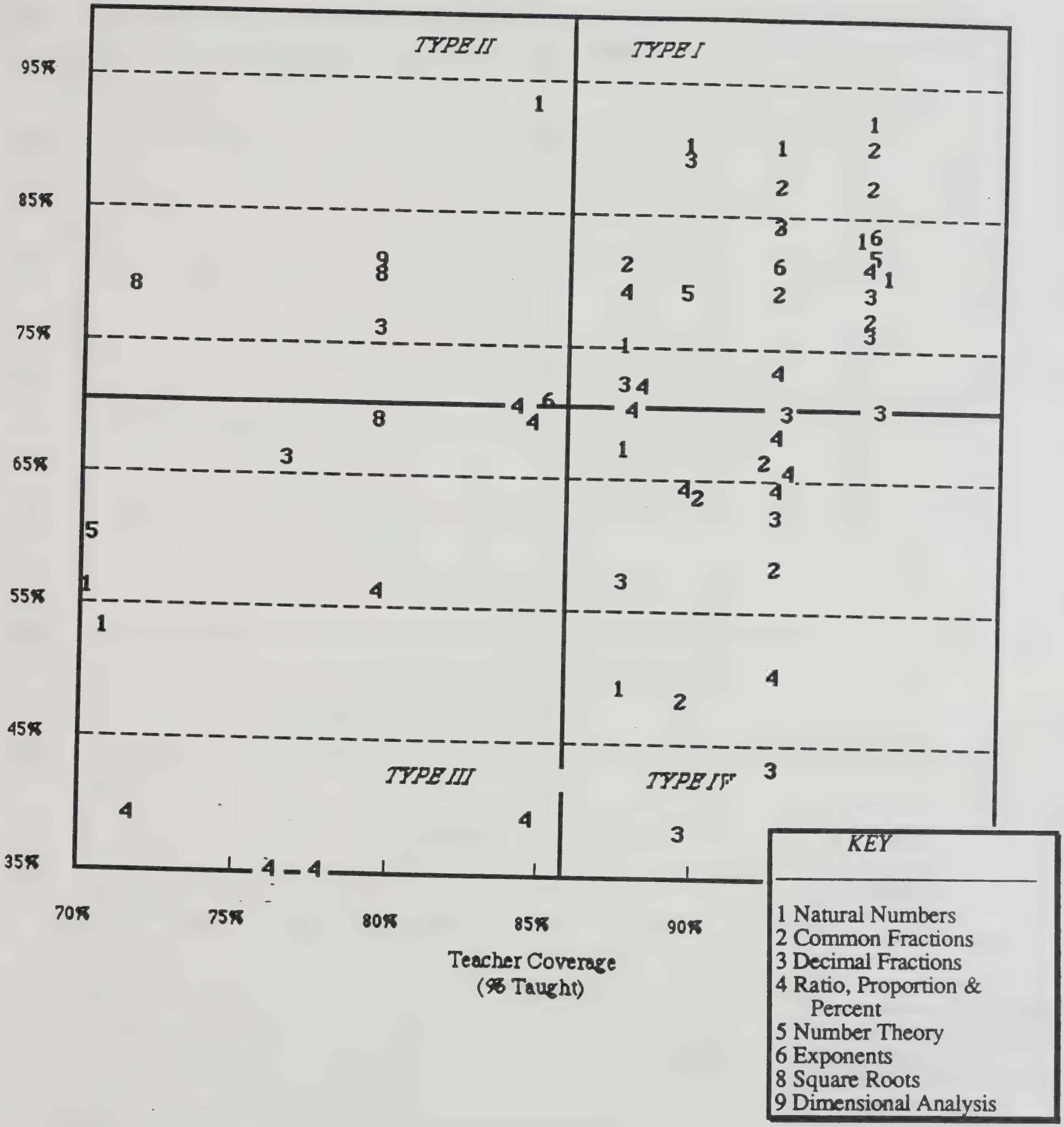
* Note: Items are ordered by p-value.

100	2 METERS + 3 MILLIMETERS IS EQUAL TO	56	85	1
165	WHICH OF THE FOLLOWING IS THE CLOSEST APPROX TO THE	56	91	3
39	WHAT IS THE VOLUME OF A RECTANGULAR BOX WITH INTER	61	91	4
167	THE AREA OF THE SHADED FIGURE	62	79	2
103	A SQUARE IS REMOVED FROM THE RECTANGLE AS SHOWN.	62	88	4
135	THE LENGTH OF A BOX WAS MEASURED AND FOUND TO BE 9	63	79	3
38	ON THE ABOVE SCALE THE READING INDICATED BY THE AR	65	91	2
199	THE AREA OF THE SHADED CIRCLE IS WHAT PART OF THE	67	50	4
164	ACCORDING TO THE SCALE SHOWN THE LENGTH OF SIDE BC	71	94	2
101	A 15 CENTIMETER PIECE IS CUT FROM A RIBBON 1 METER	74	85	1
68	THE DISTANCE BETWEEN TWO TOWNS IS USUALLY MEASURED	82	85	1
69	THE LENGTH OF AB IS 1 UNIT. WHICH IS THE BEST ESTI	94	76	2

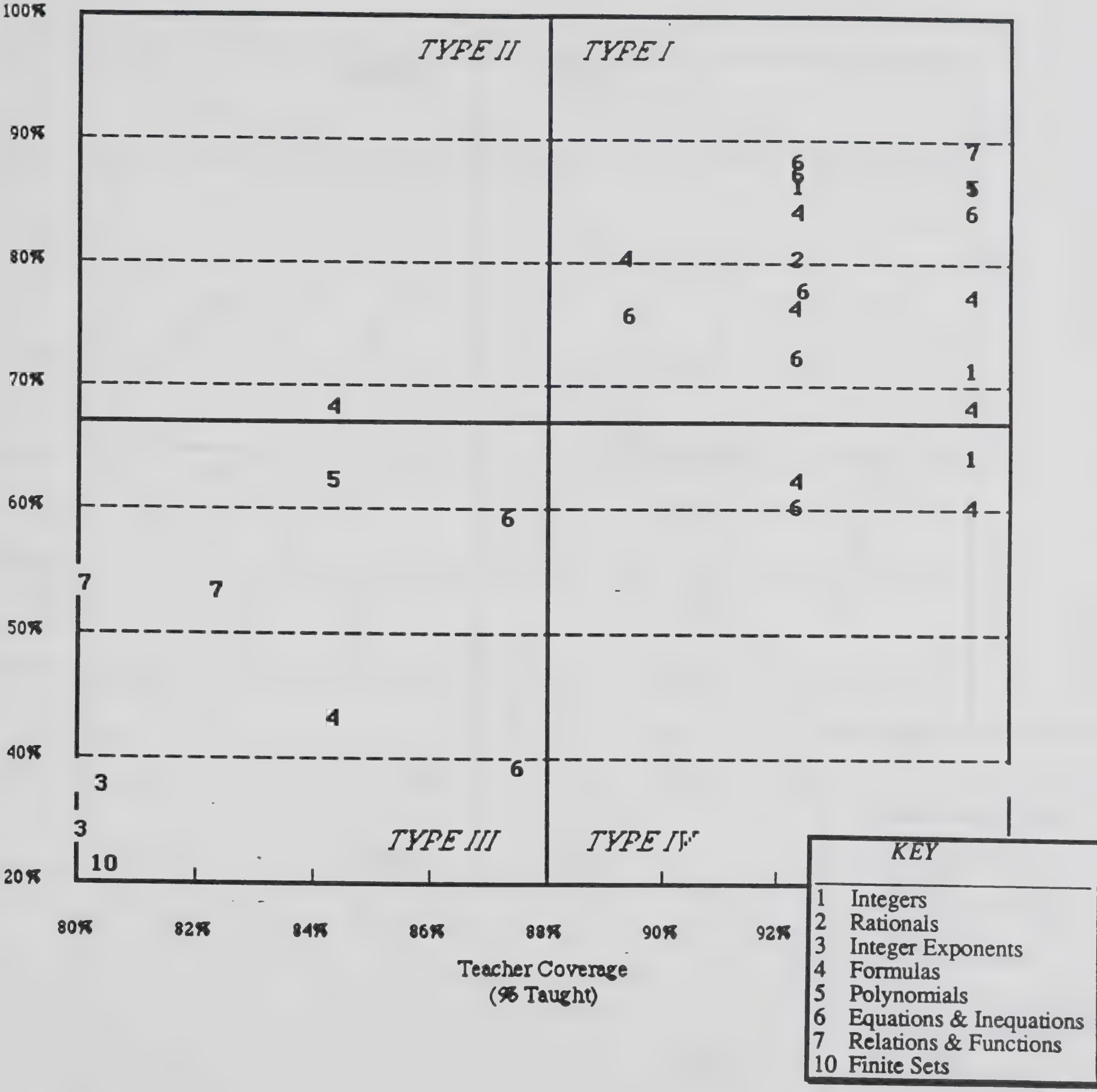
United States
Population A

Arithmetic:
Algebra Classes



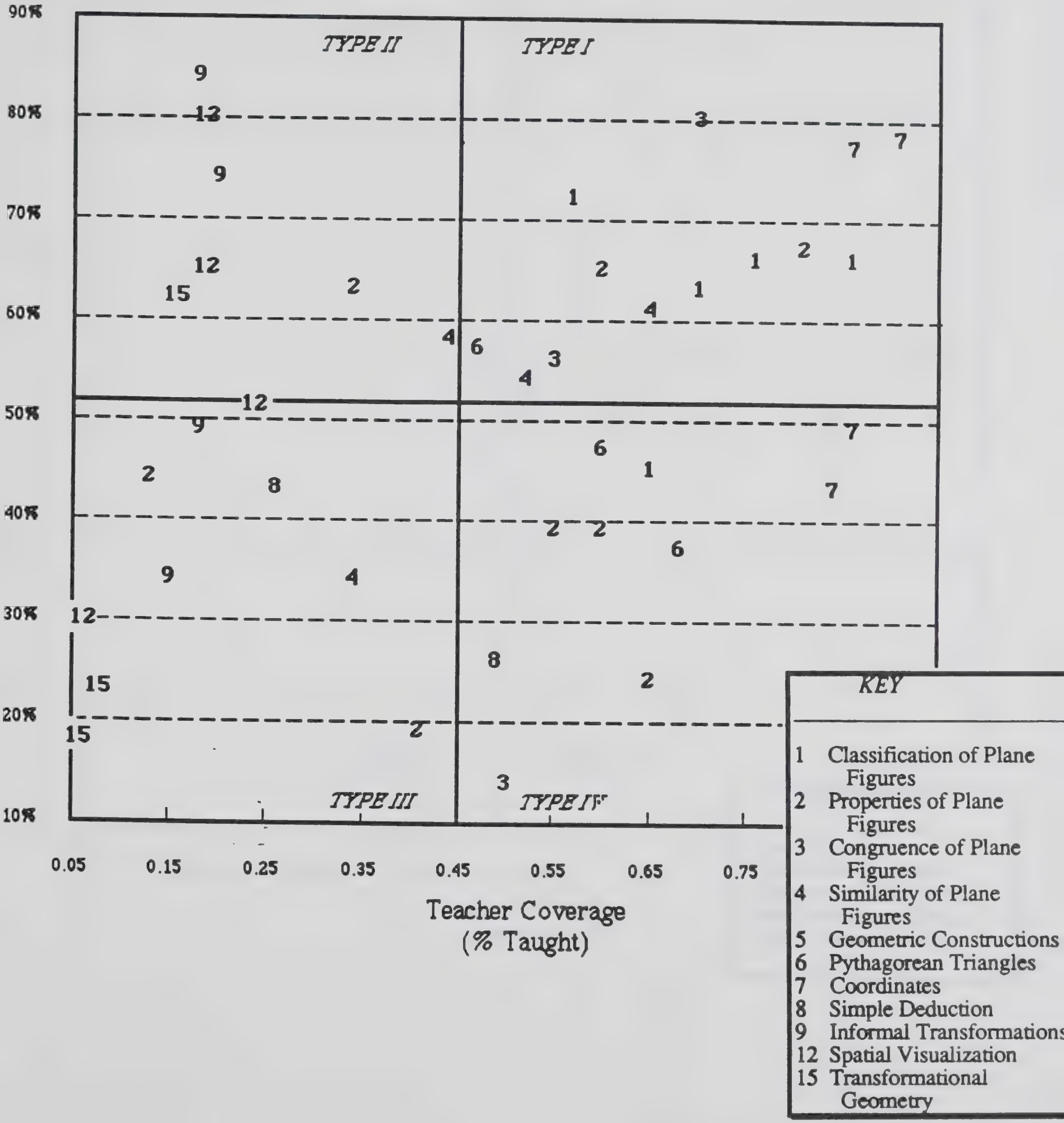
United States:
Population A

Algebra:
Algebra Classes



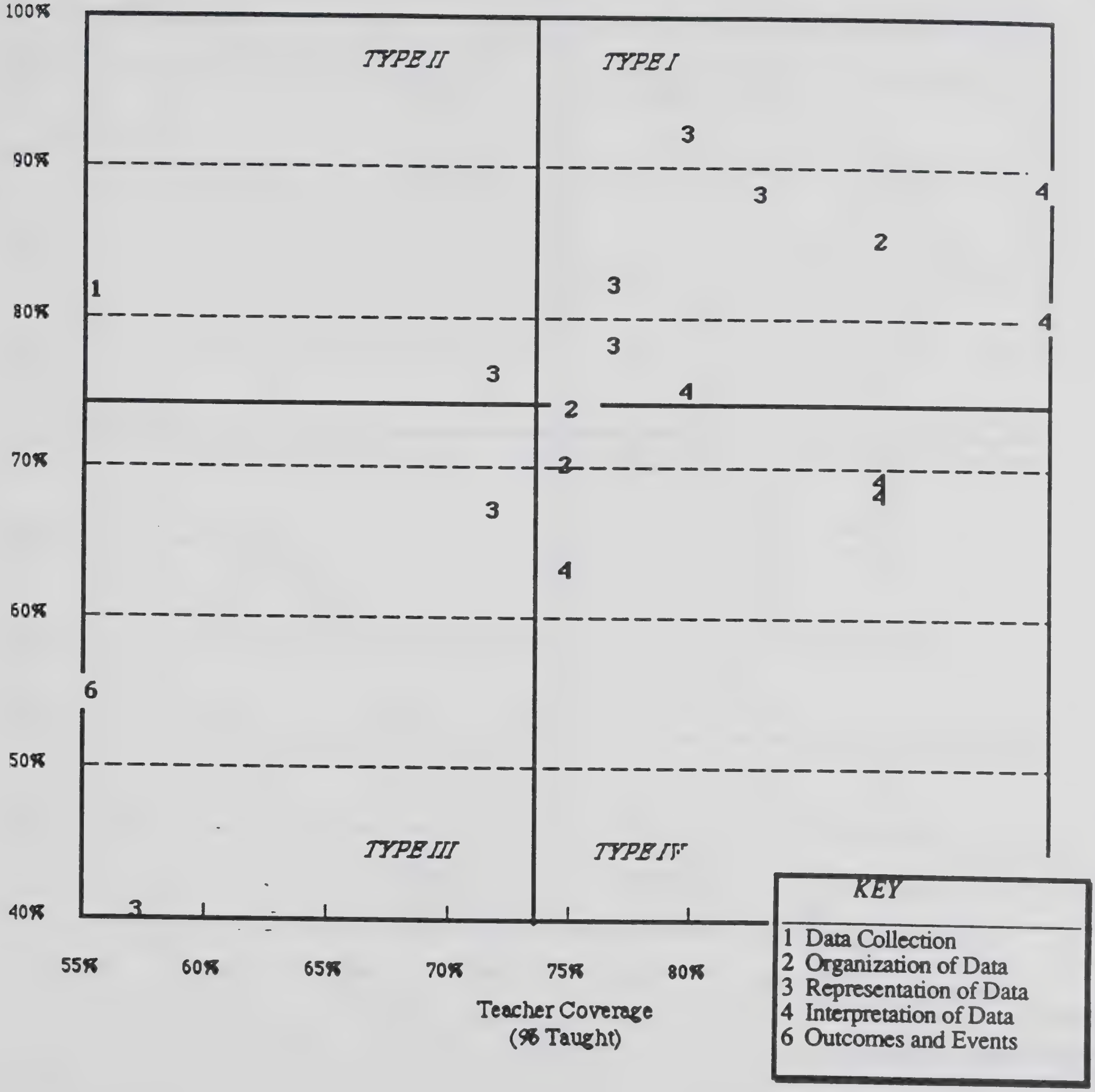
United States
Population A

Geometry:
Algebra Classes



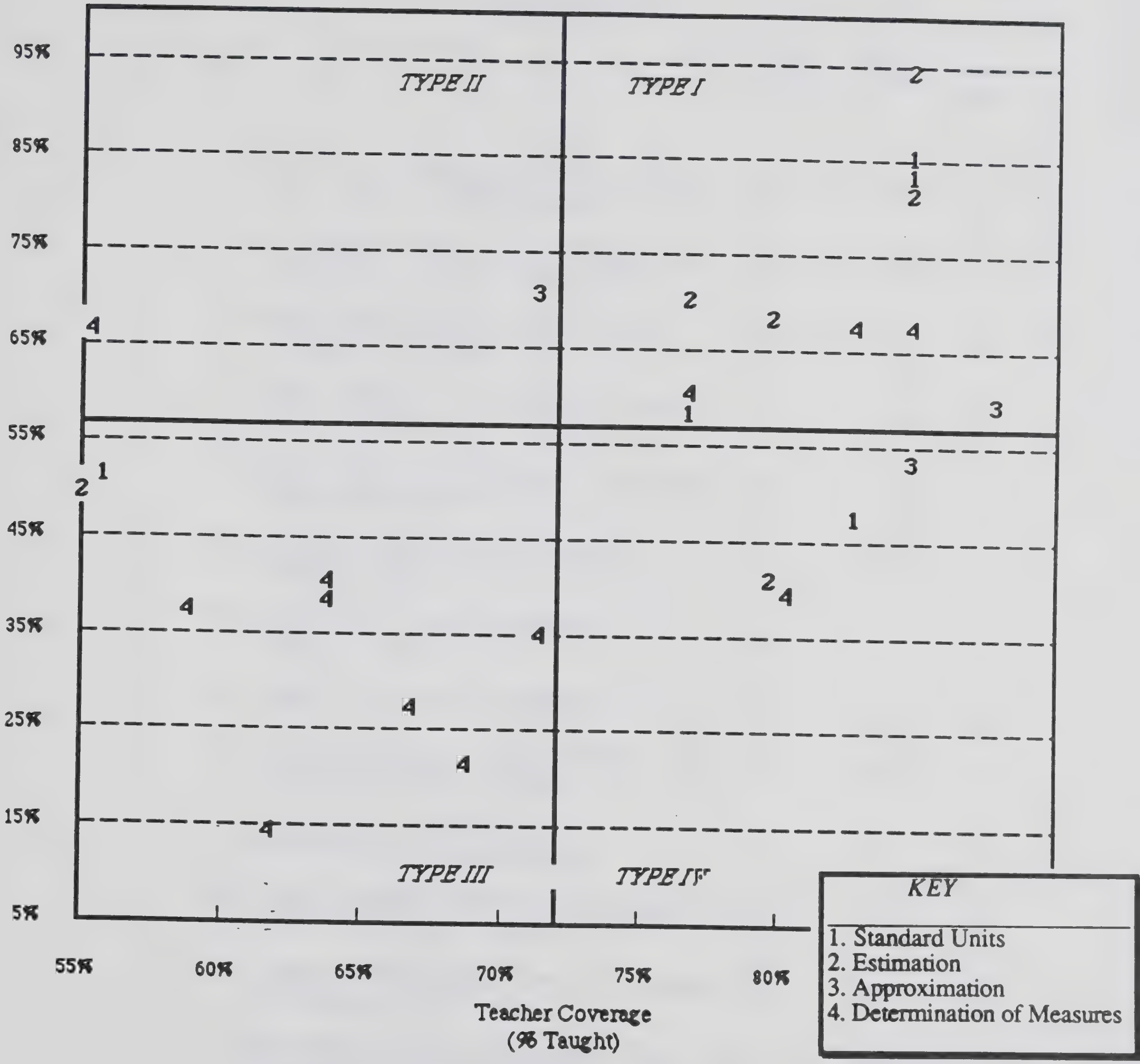
United States
Population A

Statistics:
Algebra Classes



United States
Population A

Measurement:
Algebra Classes



POPULATION A:
ALGEBRA CLASSES

ARITHMETIC

Item ID	Short Text	p-value	OTL %	Sub-Area
180	$150 IS DIVIDED IN THE RATIO OF 2 TO 3. THE SMALLER	31	76	4
78	A RUNNER RAN 3000 METRES IN EXACTLY 8 MNS. WHAT WAS	38	89	3
142	THE TABLE ABOVE SHOWS THE VALUES OF X AND Y	39	71	4
191	THE PRICE OF AN ARTICLE WAS $100. THE PRICE WAS FI	39	84	4
45	THE VALUE OF 0.2131 * 0.02958 IS APPROXIMATELY	43	92	3
76	FOUR 1-LITER BOWLS OF ICE CREAM WERE SET OUT AT A	48	89	2
105	WHICH OF THE FOLLOWING IS (ARE) TRUE?	49	87	1
179	WHAT IS 20 AS A PERCENT OF 80?	50	92	4
79	A PAINTER IS TO MIX GREEN AND YELLOW PAINT IN THE	56	79	4
6	ALEXANDRA WALKED FROM RIVERVIEW TO BRIDGEPORT	57	87	3
188	THE PICTURE SHOWS SOME BLACK AND SOME WHITE MARBLE	58	92	2
74	(TRIANGULAR ARRAY OF 1'S) WHAT IS THE SUM OF THE 5	58	16	1
2	MATCHSTICKS ARE ARRANGED AS FOLLOWS. IF THE PATTERN	59	21	1

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* Note: Items are ordered by p-value.

140	7 3/20 IS EQUAL TO	62	92	3
192	A CAR TAKES 15 MINUTES TO TRAVEL 10 KILOMETERS. WH	64	89	4
177	CANDIDATE A RECEIVED 70 PERCENT OF THE VOTES CAST	64	92	4
43	WHICH OF THE POINTS A	64	89	2
8	IN A SCHOOL OF 800 PUPILS	65	87	4
46	20% OF 125 IS EQUAL TO	66	92	4
184	THE LARGE SQUARE HAS AREA 1 SQUARE UNIT. THE AREA	66	76	3
44	THERE ARE 35 STUDENTS IN A CLASS. 1/5 OF THEM COME	66	92	2
144	ONE BELL RINGS EVERY 8 MINUTES, A SECOND BELL	67	55	5
9	30 IS 75% OF WHAT NUMBER?	67	84	4
137	WHICH OF THE FOLLOWING OPERATIONS WITH WHOLE NUMBER	67	87	1
110	IN A SCHOOL ELECTION WITH THREE CANDIDATES	68	92	4
112	3.23 * 10**5 IS EQUAL TO	69	84	6
143	IF THERE ARE 300 CALORIES IN 100 GRAMS OF A CERTAIN	69	84	4
81	SINCE 4 * 9 = 36	69	79	8
182	WHICH OF THE FOLLOWING IS THIRTY-SEVEN THOUSANDTHS	70	95	3
189	1/5 IS EQUAL TO	70	87	4
5	0.40 * 6.38 IS EQUAL TO	70	92	3
47	IF THE RATIO OF 2 TO 5 EQUALS THE RATIO OF N TO 10	72	87	4
141	THE SPEED OF SOUND IS APPROXIMATELY 340 METERS PER	72	87	3

190	CLOTH IS SOLD BY THE SQUARE METER. IF 6 SQUARE MET	73	92	4
106	PETER AND PAUL DECIDED TO START SAVING MONEY. PETER	75	87	1
77	THE POSITION ON THE SCALE INDICATED BY THE ARROW I	76	79	3
183	74.236 ROUNDED TO THE NEAREST HUNDREDTH IS	76	95	3
139	(3/5)/(2/7) IS EQUAL TO	77	95	2
111	WHICH OF THE FOLLOWING EQUALS 7 * (3 + 9)?	79	89	5
108	.004)24.56 IN THE DIVISION ABOVE	79	95	3
11	WHAT IS THE SQUARE ROOT OF 12 * 75?	79	71	8
181	A MODEL BOAT IS BUILD TO SCALE SO THAT IT IS 1/10	79	87	4
107	1 2/5 - 1/2 IS EQUAL TO	79	92	2
145	THE SQUARE ROOT OF 75 IS BETWEEN	80	79	8
10	THE VALUE OF 2**3 * 3**2 IS 10*N. THEN N IS EQUAL	81	92	6
75	IN THE FIGURE THE LITTLE SQUARES ARE ALL THE SAME	81	87	2
146	FIND THE SUM: 3 WEEKS 5 DAYS + 9 WEEKS 6 DAYS	81	79	9
178	72% IS EQUAL TO	82	95	4
1	(22 * 18) - (47 + 59) IS EQUAL TO	82	95	1
80	WHICH OF THESE NUMBERS IS A PRIME NUMBER?	83	95	5
48	IF 10**2 * 10**3 = 10**N THEN N IS EQUAL TO	84	95	6
3	2/5 + 3/8 IS EQUAL TO	84	92	2

7	(847.36) IN THE NUMBER IN THE BOX	84	92	3
186	1/2 * 1/4 IS EQUAL TO	87	92	2
185	WHICH IS THE CLOSEST ESTIMATE FOR THE ANSWER TO 5	87	92	2
187	3/8 - 1/5 IS EQUAL TO	87	95	2
109	IN A DISCUS-THROWING COMPETITION	89	89	3
4	WHICH OF THE FOLLOWING IS A PAIR OF EQUIVALENT FRA	90	95	2
41	1054 - 865	90	92	1
42	WHICH OF THE FOLLOWING IS EQUAL TO A QUARTER OF A	90	89	1
73	162 * 47 IS EQUAL TO	92	95	1
138	A GROUP OF CHILDREN WAS DIVIDED INTO 7 TEAMS WITH	93	84	1

ALGEBRA

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120	THE SYMBOL P INTERSECT Q REPRESENTS THE INTERSECTI	32	71	10
87	THE DAVIS FAMILY TOOK A CAR TRIP FROM ANABRU THROU	33	87	6
84	0.00046 IS EQUAL TO	38	58	3
16	SODA COSTS A CENTS FOR EACH BOTTLE	43	84	4
55	FOR THE TABLE SHOWN, A FORMULA THAT COULD RELATE	53	82	7
19	THE TABLE BELOW COMPARES THE HEIGHT FROM WHICH A B	54	68	7
118	(X/2) < 7 IS EQUIVALENT TO	59	87	6
151	IF 5X + 4 = 4X - 31	60	92	6
116	IF X = Y = Z = 1, THEN (X-Z)/(X+Y) EQUALS	60	95	4
88	A/15 - B/5 IS EQUAL TO	62	84	5
52	THE COST OF PRINTING GREETING CARDS CONSISTS OF A	62	92	4
13	THE AIR TEMPERATURE AT THE FOOT OF A MOUNTAN IS 31	64	95	1
148	WHICH OF THE FOLLOWING IS FALSE WHEN A	68	84	4
85	IF Y DOLLARS ARE SHARED EQUALLY AMONG FOUR BOYS	68	95	4
113	(-6) - (-8) IS EQUAL TO	71	95	1

* Note: Items are ordered by p-value.

18	THE ERROR IN THE ABOVE REASONING	72	92	6
82	THE SET OF INTEGERS LESS THAN 5 IS REPRESENTED ON	75	89	1
86	IF 4X/12 = 0	75	89	6
195	A NUMBER X IS MULTIPLIED BY ITSELF AND THE RESULT	77	92	4
115	IF X = -3, THE VALUE OF -3X EQUALS	77	95	4
196	THE SENTENCE ’A NUMBER X DECREASED BY 6 IS LESS TH	78	92	6
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GEOMETRY

Item ID	Short Text	p-value	OTL %	Sub-Area
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59	THREE STRAIGHT LINES INTERSECT AS SHOWN IN THE DIA	19	39	2
171	IF D IS THE DIRECTION OF PROJECTION AND A IS THE A	23	5	15
123	IN A QUADRILATERAL, TWO OF THE ANGLES ARE 110 DEGRE	24	63	2
25	THE TRIANGLES SHOWN ABOVE ARE CONGRUENT. THE MEASU	25	47	3
62	IN THE ABOVE RECTANGLE THE MEASURE OF ANGLES ROQ I	26	47	8
170	GIVEN VECTOR V AND VECTOR W AS SHOWN IN THE FIGURE	30	3	15
63	PQRS IS A RECTANGLE. ITS IMAGE AFTER A TRANSFORMAT	34	13	9
125	IF TWO TRIANGLES ARE SIMILAR, WHICH OF THE FOLLOWIN	34	32	4
27	(RIGHT TRIANGLE WITH 2 SIDES GIVE) WHAT IS THE VAL	37	66	6
128	IF, IN A GIVEN FIGURE,PQ AND RS ARE INTERSECTING	39	58	2
58	LINES AB AND CD ARE PARALLEL. TWO ANGLES WHOSE MEA	39	53	2
127	IN THE ABOVE DIAGRAM, TRIANGLES ABD AND DEF ARE	43	24	8

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* Note: Items are ordered by p-value.

29	ONE OF THE FOLLOWING POINTS CAN BE JOINED TO THE P	43	82	7
23	THE LENGTH OF THE CIRCUMFERENCE OF THE CIRCLE WITH	44	11	2
21	A QUADRILATERAL MUST BE A PARALLELOGRAM IF IT HAS	45	63	1
93	WHICH OF THESE IS A CORRECT STATEMENT FOR THIS TRI	47	58	6
96	TRIANGLE ABC AND TRIANGLE A'B'C' ARE CONGRUENT AND	49	16	9
169	SUPPOSE YOU START AT POINT M(-1,-1), MOVE A DISTANC	49	84	7
198	WHICH OF THE FOLLOWING PATTERNS CAN BE FOLDED ALON	51	21	12
175	ON A NUMBER LINE TWO POINTS A AND B ARE GIVEN. THE	51	71	7
197	THE PICTURE ABOVE SHOWS HOW PEDRO USED A SHORT TREE	54	50	4
24	IF SEGMENT PQ WERE DRAWN FOR EACH FIGURE SHOWN BELO	56	53	3
193	(TRAPEZOID WITH DIMENSIONS) X IS EQUAL TO	57	45	6
156	TRIANGLES PQR AND STU ARE SIMILAR. HOW LONG IS SU?	58	42	4
26	ON LEVEL GROUND, A BOY 5 UNITS TALL CASTS A SHADOW	61	63	4
174	A HALF-TURN ABOUT O IS APLIED TO THE FIGURE ABOVE.	62	13	15
90	THE LINE M IS A LINE OF SYMMETRY FOR FIGURE ABCDE.	63	32	2
57	THE FIGURE QRST IS A SQUARE AND PQT AN EQUILATERAL	63	68	1
159	THE FIGURE ABOVE SHOWS A WOODEN CUBE WITH ONE CORN	65	16	12

155	IF AB IS A STRAIGHT LINE, WHAT IS THE MEASURE IN	65	58	2
121	WHICH OF THE INDICATED ANGLES IS ACUTE?	66	74	1
89	AB // DC AND AD // BC. QUADRILATERAL ABCD IS A	66	84	1
122	(TRIANGLE WITH 2 ANGLES GIVEN) X IS EQUAL TO	67	79	2
22	AB, CD AND EF ARE INTERSECTING STRAIGHT LINES.	72	55	1
158	TRIANGLE PQT CAN BE ROTATED (TURNED) ONTO TRIANGLE	74	18	9
126	THE STRAIGHT LINE JOINING THE POINTS (2,3) AND	77	84	7
28	WHAT ARE THE COORDINATES OF POINT P?	78	89	7
91	ONE OF THE FOLLOWING FIGURES IS CONGRUENT WITH THE	80	68	3
31	THE DIAGRAM SHOWS A CARDBOARD CUBE WHICH HAS BEEN	80	16	12
30	IN WHICH DIAGRAM BELOW IS THE SECOND FIGURE THE IM	84	16	9

STATISTICS

Item ID	Short Text	p-value	OTL %	Sub-Area
129	THERE ARE 7M GIRLS UNDER THE AGE OF 21	17	45	3
163	THERE ARE FIVE BLACK BUTTONS AND ONE RED BUTTON IN	54	45	6
99	IN THE GRAPH RAINFALL IS PLOTTED FOR 13 WEEKS.	63	74	4
161	HOW MUCH LONGER DOES IT TAKE FOR CAR B TO GO 50 KI	67	71	3
130	THE WEIGHT GAIN FROM 6 TO 10 MONTHS WAS	68	87	4
35	THE ARITHMETIC MEAN (AVERAGE) OF: 1.50	69	87	4
97	A TABLE SHOWS SCORES FOR A CLASS ON A 10-POINT TES	70	74	2
131	THE PETALS ON 100 FLOWERS OF DIFFERENT KINDS WERE	74	74	2
162	THE GRAPH SHOWS THE TIME OF TRAVEL BY PUPILS FROM	75	79	4
66	THE GRAPH SHOWS THE DISTANCE TRAVELED BY A TRACTOR	76	71	3
160	THREE HOURS AFTER STARTING CAR A IS HOW MANY KILOME	78	76	3
67	JOE HAD THREE TEST SCORES OF 78	80	95	4
98	HERE IS A TABLE OF DATA AND A GRAPH OF THE SAME DA	82	76	3

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* Note: Items are ordered by p-value.

32	HERE IS A TABLE THAT SHOWS THE NUMBER OF TREES PLA	85	87	2
65	YOU WISH TO KNOW ABOUT THE POPULARITY OF THE SOFT-	88	37	1
34	WHICH OF THESE IS A TRUE STATEMENT ABOUT THE INFOR	88	82	3
132	A TEAM SCORES AN AVERAGE OF 3 POINTS PER GAME OVER	89	95	4
33	THE CIRCLE GRAPH SHOWS THE PROPORTION OF VARIOUS G	92	79	3

MEASUREMENT

Item ID	Short Text	p-value	OTL %	Sub-Area
168	A SOLID PLASTIC CUBE WITH EDGES 1 CM LONG WEIGHS 1	14	61	4
136	WHAT IS THE CAPACITY OF A CUBIC CONTAINER 10 CM BY	21	68	4
166	WHAT IS THE SURFACE AREA OF THIS SOLID RECTANGULAR	27	66	4
37	THE TOTAL AREA OF THE TWO TRIANGLES IS	35	71	4
71	THE RECTANGLE SHOWN ABOVE IS CUT ALONG THE DOTTED	37	58	4
40	THERE IS A BRASS PLATE OF THE SHAPE AND DIMENSIONS	38	63	4
70	WHAT IS THE AREA OF THE ABOVE PARALLELOGRAM?	40	79	4
194	WHAT IS THE AREA OF TRIANGLE PQR?	40	63	4
102	THE MEASURE OF THE ANGLE SHOWN IS NEAREST TO	41	79	2
133	HOW MANY PIECES OF PIPE EACH 20 METERS LONG WOULD	47	82	1
36	WHICH OF THE FOLLOWING IS ... TO THE WEIGHT OF A N	51	55	1
72	THE FIGURE ABOVE SHOWS A RECTANGULAR BOX. WHICH OF	53	84	3
100	2 METERS + 3 MILLIMETERS IS EQUAL TO	58	76	1
165	WHICH OF THE FOLLOWING IS THE CLOSEST APPROX TO THE	59	87	3

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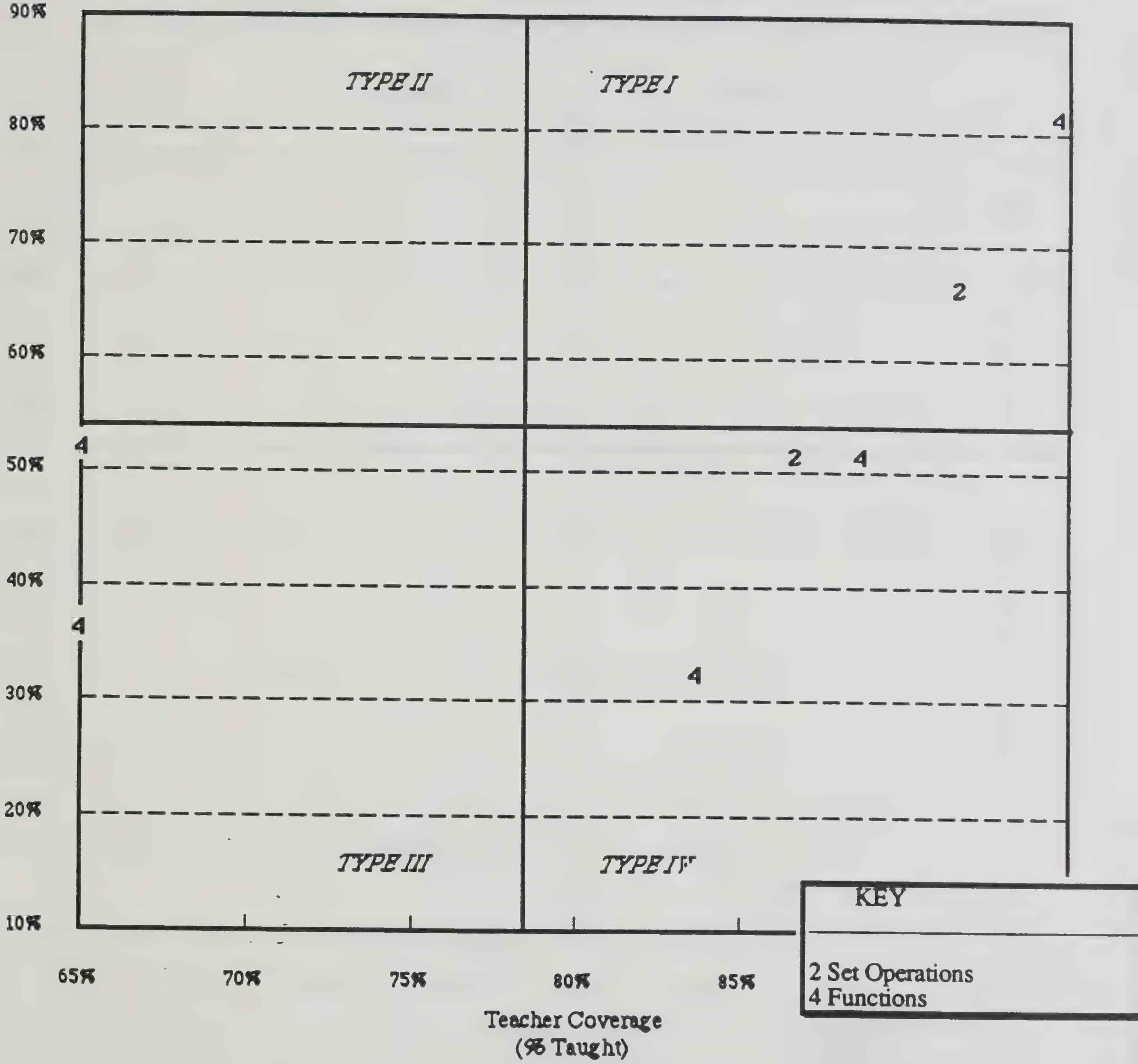
* Note: Items are ordered by p-value.

104	MICHAEL HAS A LARGE NUMER OF WOODED BLOCKS WHICH A	60	76	4
134	EACH OF THE SMALL SQUARES IN THE FIGURE IS 1 SQUARE	62	47	2
39	WHAT IS THE VOLUME OF A RECTANGULAR BOX WITH INTER	67	82	4
103	A SQUARE IS REMOVED FROM THE RECTANGLE AS SHOWN.	67	84	4
38	ON THE ABOVE SCALE THE READING INDICATED BY THE AR	68	79	2
135	THE LENGTH OF A BOX WAS MEASURED AND FOUND TO BE 9	69	71	3
167	THE AREA OF THE SHADED FIGURE	70	76	2
199	THE AREA OF THE SHADED CIRCLE IS WHAT PART OF THE	79	24	4
164	ACCORDING TO THE SCALE SHOWN THE LENGTH OF SIDE BC	81	84	2
101	A 15 CENTIMETER PIECE IS CUT FROM A RIBBON 1 METER	83	84	1
68	THE DISTANCE BETWEEN TWO TOWNS IS USUALLY MEASURED	85	84	1
69	THE LENGTH OF AB IS 1 UNIT. WHICH IS THE BEST ESTIMATE	94	84	2

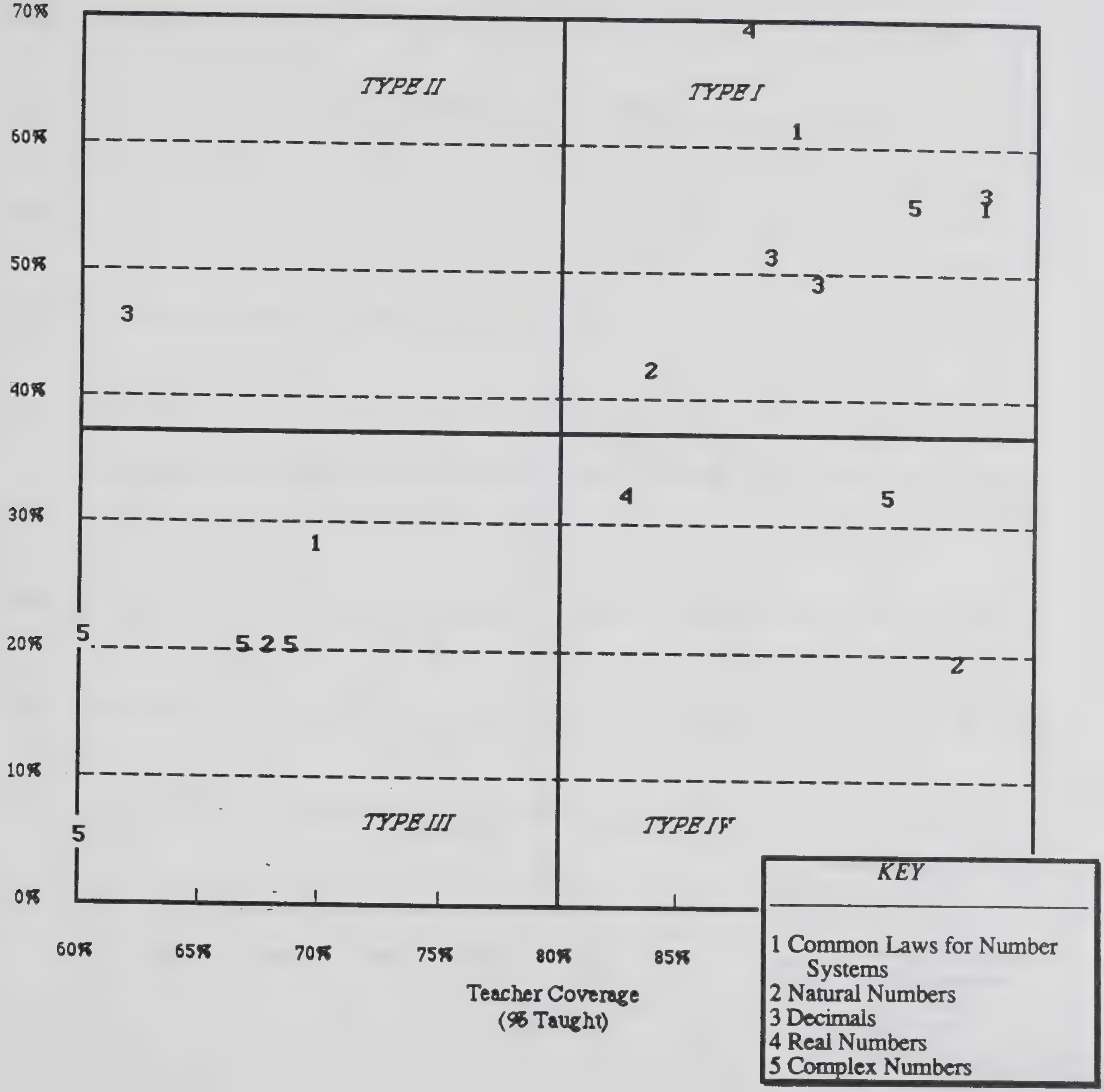
United States
Population B

Sets & Relations:
Precalculus Classes



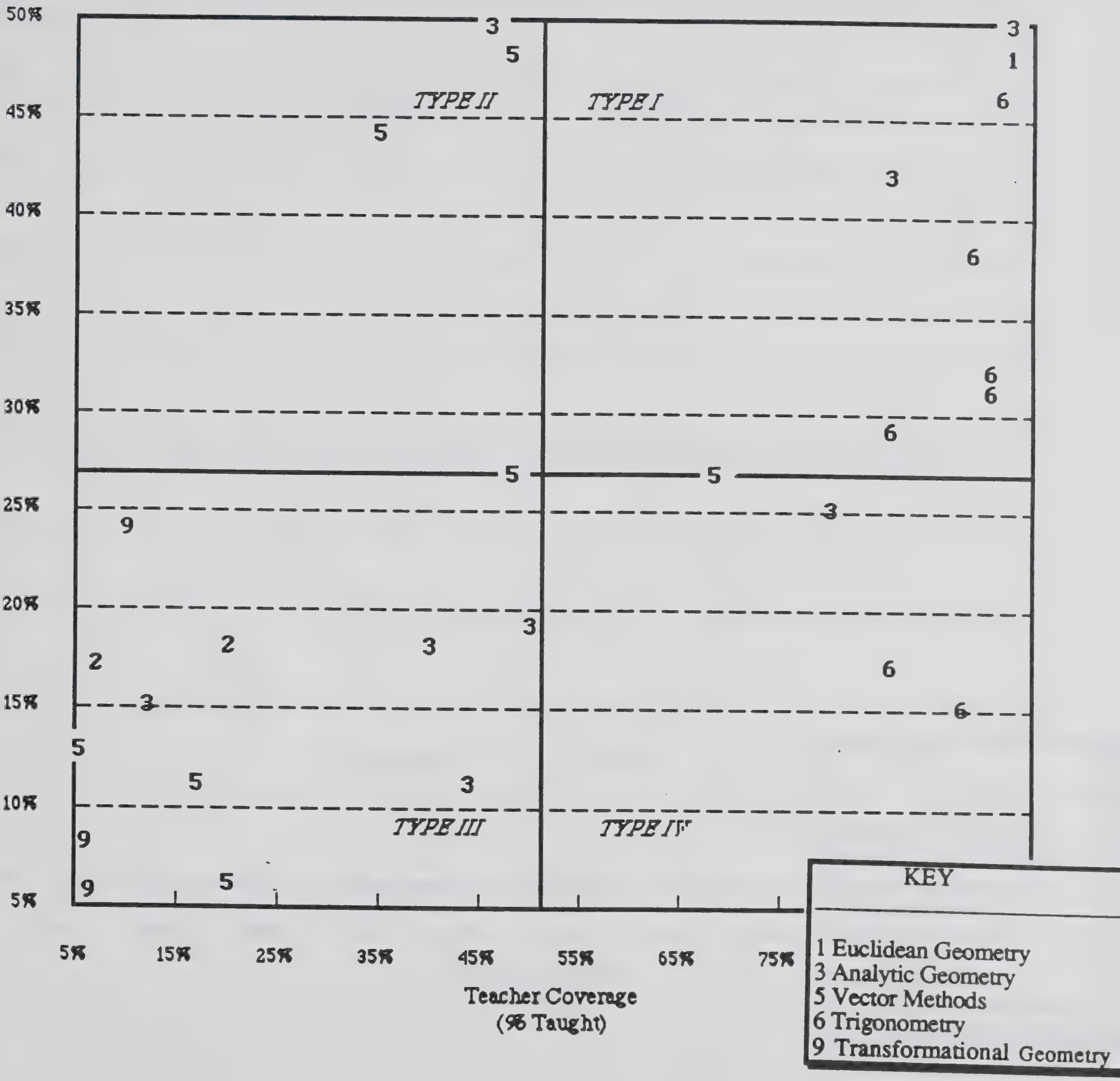
United States
Population B

Number Systems:
Precalculus Classes

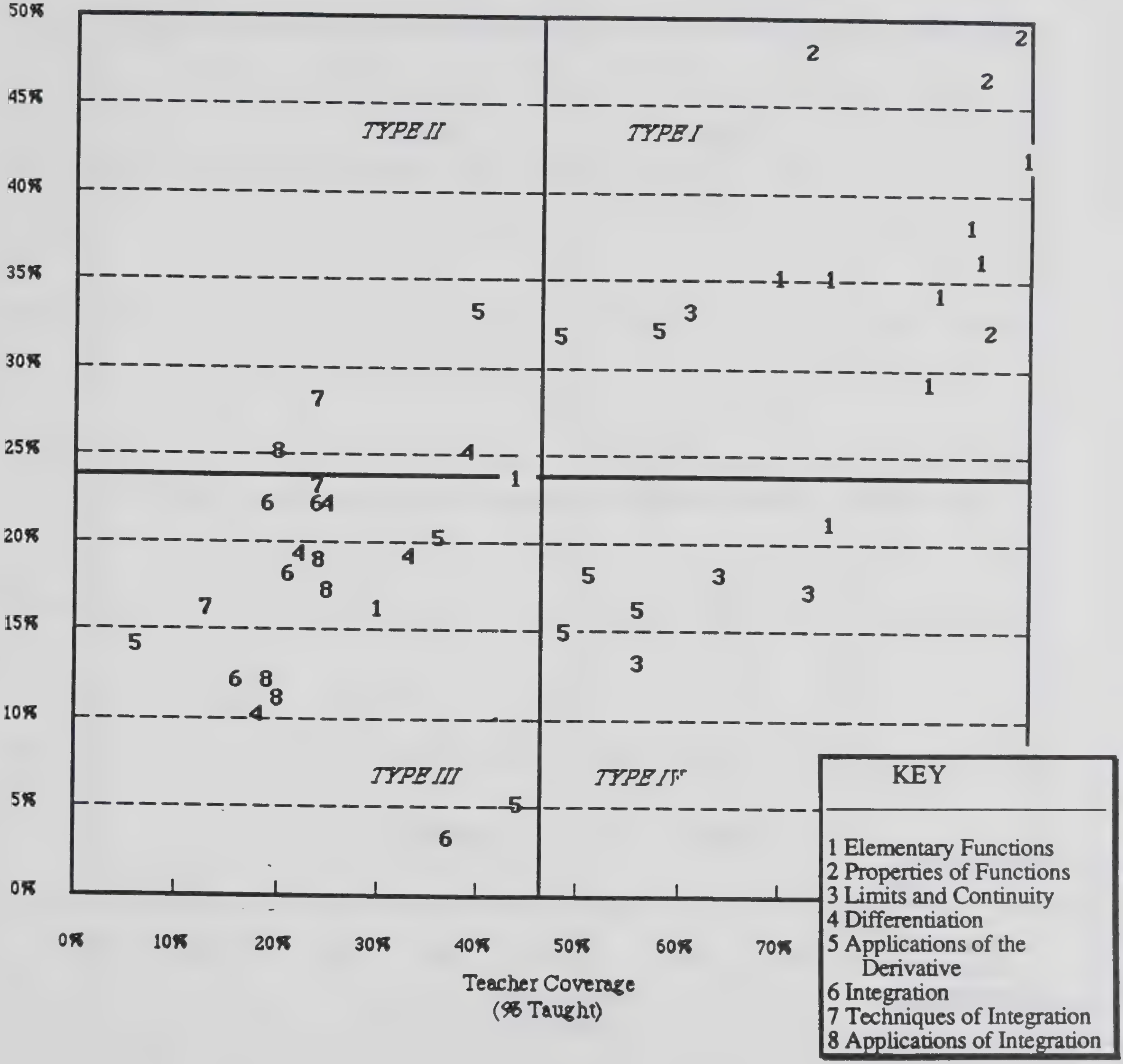


United States
Population B

Geometry:
Precalculus Classes

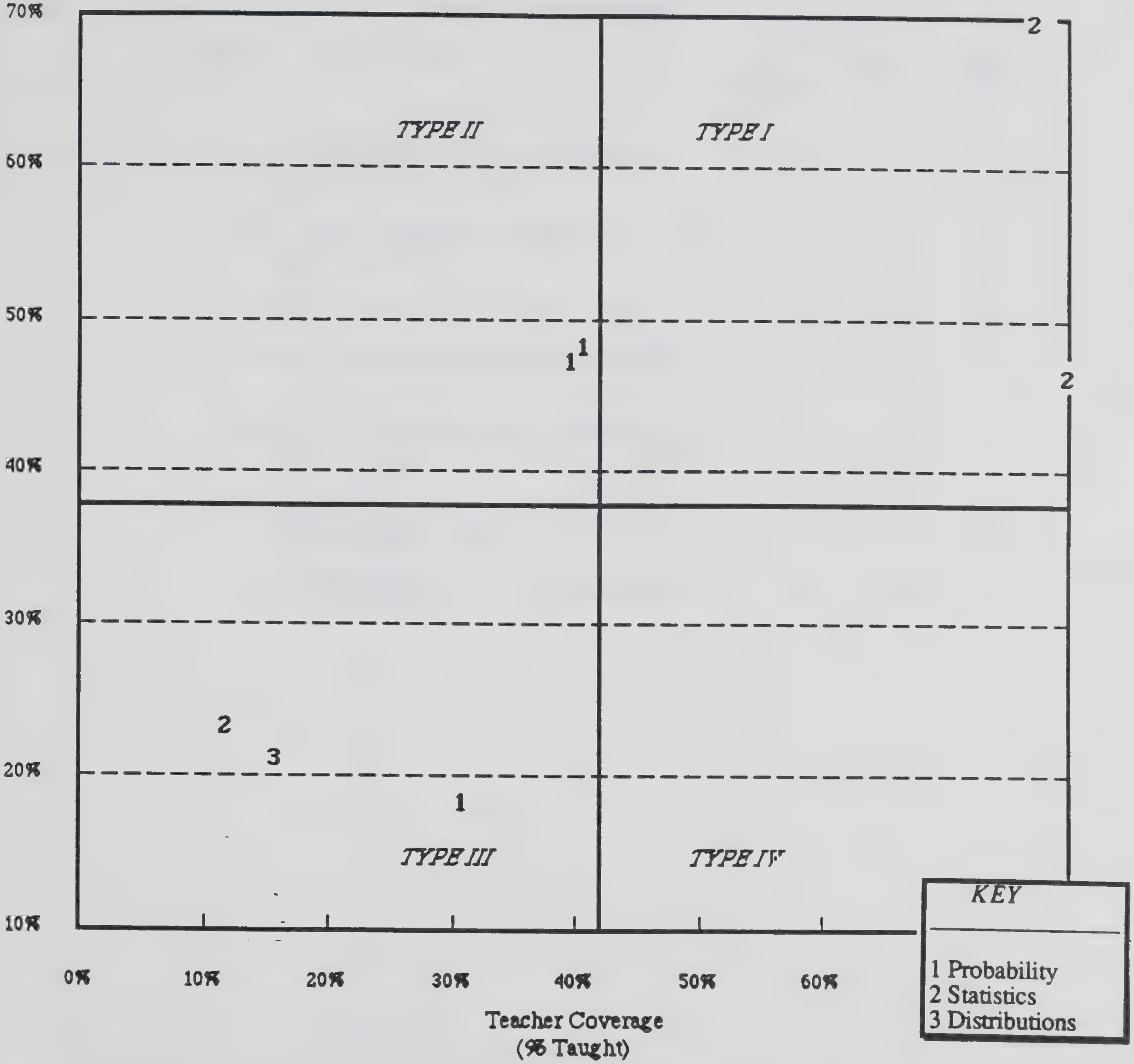


Elementary Functions & Calculus:
Precalculus Classes



United States
Population B

Probability & Statistics:
Precalculus Classes



POPULATION B:
PRE-CALCULUS CLASSES

SETS & RELATIONS

Item ID	Short Text	p-value*	OTL %	Sub-Area
91	A FUNCTION F IS DEFINED BY F(X) = ... <ST	32	83	4
76	A REAL VALUED FUNCTION ... IS SAID TO BE	38	39	4
1	IF X AND Y ARE SETS THEN	51	86	2
61	THE INVERSE OF THE FUNCTION <(-2 0) (-1	51	88	4
16	LET A FUNCTION BE DEFINED BY F(X Y)=X	52	63	4
31	THE SYSMBOL P INTERSECT Q REPRESENTS THE	66	91	2
46	A FUNCTION F ... IS DEFINED BY F(X)=2**X.	81	94	4

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* Note: Items are ordered by p-value.

NUMBER SYSTEMS

Item ID	Short Text	P-value*	OTL %	Sub-Area
93	Z IS A COMPLEX NUMBER WITH MODULUS ROOT 2	8	54	5
78	IF A = 2**3 * 5**2 * 7 AND B = 3**2 * 5**	19	96	2
33	IF A SUB(1)= 1 AND A SUB(N+1)= A SUB(N)+2	20	67	2
135	IF Z = (ROOT 3 + I)/2 THEN Z**60 IS EQUAL TO	20	66	5
18	IF Z=COS(PI/6) + I*SIN(PI/6) THEN	20	68	5
34	THE ORIGIN Z1 Z3 AND Z2 ARE THE CONSEC	20	48	5
3	AN OPERATION * (ON THE SET OF REAL NUMBER	28	69	1
47	IF 10**A = 4 THEN 10**(1+2A) IS EQUAL TO	32	82	4
62	IF U=3+I AND V=-2-2I THEN U/V IS EQUAL T	32	93	5
64	ACCORDING TO ONE PLAN FOR TRAVELLING TO M	42	83	2
48	THE SPEED OF AN OBJECT INCREASES UNIFORML	46	61	3
32	GIVEN THAT ROOT 600 IS APPROX 24.4949 AN	49	90	3
64	ACCORDING TO ONE PLAN FOR TRAVELLING TO M	51	88	3
94	... WHAT IS BAR .7 + BAR .4 ? (BAR = REPE	51	88	3

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* Note: Items are ordered by p-value.

2	FOR ALL RATIONAL NUMBERS A B C AND D	55	97	1
92	THE COMPLEX NUMBER (1 + I)**2 IS EQUAL TO	55	94	5
49	8/(3-ROOT 2) IS EQUAL TO	56	97	3
63	... WHICH ... IS IDENTICAL TO THE SET OF	61	89	1
77	IF 3**(X+Y) = 81 AND 25**(X/2) = 5 THEN	69	87	4

ALGEBRA

Item ID	Short Text	p-value	OTL %	Sub-Area
8	P IS A POLYNOMIAL IN X OF DEGREE M AND Q	10	70	1
21	ACCORDING TO THE GRAPH AX+B>CX**2 WHEN	13	53	4
20	X AND Y . . . THE PRODUCT OF THE MATRICES	15	45	6
4	3A**(1/2) * 3A**(-1/2) =	17	96	3
81	... FOR WHICH X CAN YOU DEFINE Y BY Y = X	22	95	3
96	GIVEN THAT A=>0 6TH ROOT (A**5) IS EQUA	23	94	3
7	A STATIONER WANTS TO MAKE A CARD 8CMS LON	26	75	4
95	WHEN (1 + P)**6 IS EXPANDED THE COEFFICI	30	79	1
65	IF (X-1)/(X**2 + 3X + 2)=(P/(X+1)) + (Q/(	30	70	2
51	A PIECE OF WIRE 52 CM LONG IS CUT INTO TWO	32	79	5
5	WHICH OF THE FOLLOWING POINTS LIE IN THE	35	88	5
97	... HOW MANY HOURS WILL IT TAKE THE EXPRE	37	95	4
17	THE NUMBER OF PAIRS OF INTEGER VALUES OF	37	88	5
67	IF X IS A REAL NUMBER THEN Y DEFINED BY	38	95	3

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* Note: Items are ordered by p-value.

79	IF 2X**2 - 12X + 9 = 2(X-A)**2 + B THEN	38	88	1
80	IF X>0 Y>0 AND X<>Y THEN 1/(RCOT X - R	39	93	3
6	THE CURVE DEFINED BY Y=3X(X-2)(2X+1) INTE	42	95	1
50	TWO MATHEMATICAL MODELS ARE PROPOSED TO P	45	54	4
38	A CERTAIN NUMBER OF STUDENTS ARE TO BE AC	47	72	5
19	WHICH OF THE FOLLOWING . . ARE FACTORS OF	48	94	1
37	... WHAT IS THE SOLUTION OF THE SIMULTANE	56	95	5
35	WHAT ARE ALL VALUES OF X FOR WHICH THE IN	63	96	4
36	P(N)=...P(N) IS NOT DEFINED FOR	73	95	2
82	FOR THE EQUATION X**2 - 5X + 6 = 0	76	97	4
66	THE SOLUTION SET FOR THE EQUATION (1-2X)(	81	97	1

GEOMETRY

Item ID	Short Text	p-value	OTL %	Sub-Area
123	WHICH COMPLEX TRANSFORMATION IS ASSOCIATED WITH	5	5	9
134	LET E BE THE EUCLIDEAN PLANE AND F BE THE MAPPING	6	18	5
132	LET F BE THE MAPPING FROM THE COMPLEX PLANE C	8	4	9
100	VECTOR R ... CAN BE EXPRESSED AS COS THET	11	15	5
131	... THE SET OF POINTS M SUCH THAT MA**2 +	11	42	3
136	CONSIDER THE SUBSPACES OF THE VECTOR SPACE R(3)	13	3	5
121	... F G H ... WHICH OF THOSE MAPPINGS A	15	10	3
23	AN ANGLE THETA IS KNOWN TO BE BETWEEN 90	15	91	6
85	IN ANY TRIANGLE ... A/SIN A = B/SIN B = C	17	84	6
128	IN THE PLANE E T SUB B IS THE TRANSLATIO	17	5	2
126	THE COORDINATES OF A MOVING POINT M AT TI	18	18	2
53	WHAT IS THE EQUATION IN X AND Y OF THE CU	18	38	3
11	L IS THE LINE DETERMINED BY THE EQUATION	19	48	3

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* Note: Items are ordered by *p*-value.

130	... WHICH OF THE FOLLOWING TRANSFORMATION	24	8	9
133	FOR WHICH OF THE FOLLOWING VALUES OF M IS	25	78	3
40	POINT B IS ON LINE AC.IF VECTOR AC = 3 VE	27	47	5
22	THE RECTANGULAR COORDINATES OF THREE POIN	27	66	5
68	IN THE FIGURE ABOVE SEGMENT PQ IS PERPEN	29	84	6
39	IF COS(THETA) = 1/2 THEN COS (2*THETA) I	31	94	6
10	IN THE INTERVAL 2 PI <= X <= 4 PI THE SO	32	94	6
84	... COUNTEREXAMPLE TO SHOW THAT SIN(A+B)	38	92	6
69	ONE SIDE OF AN EQUILATERAL TRIANGLE LIES	42	84	3
52	FIND THE DIFFERENCE VECTOR B - VECTOR A O	44	33	5
25	WHICH OF THE FOLLOWING IS NEGATIVE	46	95	6
9	IN A CARTESIAN COORDINATE SYSTEM WHAT IS	48	95	1
98	PQRSTU IS A REGULAR HEXAGON IN WHICH VECT	48	46	5
99	IF UV = 2 YZ = 3 XU = 3 AND SEGMENT U	48	96	1
24	AS LINE AB ROTATES ABOUT LINE AC IN SPACE	53	40	3
83	THE SLOPE OF THE LINE THROUGH THE TWO POINTS	55	96	3

ELEMENTARY FUNCTIONS & ANALYSIS

Item ID	Short Text	p-value	OTL %	Sub-Area
109	GIVEN THAT 3 F'(X) = X**2 - 5 AND F(2) =	3	35	6
57	IF THE GRAPH OF THE EQUATION ... HAS A PO	5	42	5
118	IF X = 2 COS T AND Y = SIN T FIND DY/DX	10	16	4
44	... INTEGRAL F(X) DX ATTAINS ITS GREATEST	11	18	8
120	THE AREA ENCLOSED BETWEEN THE CURVE ... A	12	17	8
114	THE FUNCTION F IS DEFINED BY F(X) = INTEG	12	14	6
108	THE VALUE OF LIMIT AS H APPROACH 0 OF	13	54	3
124	THE CORDINATES OF A MOVING POINT AT TIME	14	4	5
88	THE VELOCITY OF A BODY ... HOW MANY SECON	15	45	5
73	THE VALUE OF DEFINITE INTEGRAL (1/(X**2 +	16	11	7
71	LET Y=4X**3 ... WHEN LOG X IS PLOTTED AGA	16	28	1
112	THE FUNCTION DEFINED BY ... HAS A RELATIV	16	54	5
58	THE AREA ENCLOSED BETWEEN THE CURVE ...AN	17	23	8
86	THE SUM OF ... 1 -(1/2) + (1/4) - (1/8) +	17	71	3

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* Note: Items are ordered by p-value.

110 THE FUNCTION F IS ... 18 62 3

	CONTINUOUS AT X = 1			
28	THE GRAPH OF A FUNCTION F HAS A POINT	18	49	5
107	INDEFINITE INTEGRAL ROOT (X -1) DX IS EQ	18	19	6
122	F IS AN EVEN FUNCTION AND IS DIFFERENTIABLE AT 0.	19	20	4
72	THE DERIVATIVE WITH RESPECT TO X OF 4/(RO	19	31	4
115	S1 IS THE AREA ENCLOSED BY ... THE VALUE	19	21	8
111	THE INTERSECTION OF A CYLINDER WITH A PLA	20	34	5
43	THE GRAPH ABOVE IS THE REPRESENTATION OF	21	73	1
116	DEFINITE INTEGRAL (12X/((2X**2 + 1)**2))	22	17	6
103	DEFINITE INTEGRAL (X**3 - X) DX IS EQUAL	22	22	6
106	THE FUNCTION F IS DEFINED BY ... THEN F'(	22	23	4
15	INDEFINITE INTEGRAL (X-1)**2 DX IS EQUAL	23	22	7
56	A RADIO-ACTIVE ELEMENT DECOMPOSES ACCORDING	24	41	1
14	A FUNCTION IS DEFINED BY . . .	25	37	4
29	THE L ... IS THE GRAPH OF... DEFINITE INT	25	18	8
113	DEFINITE INTEGRAL (X - (1/X**2)) DX IS EQ	28	22	7
54	FOR WHAT VALUES OF X DOES THE ... STRAIGH	29	83	1
102	THE FUNCTION F DEFINED BY ... IS NEGATIVE	32	89	2
117	THE CURVE DEFINED BY ... HAS A RELATIVE M	32	45	5

104	AT WHICH POINT DOES THE CURVE Y = 3X**2 -	32	56	5
119	WHICH OF THE FOLLOWING GRAPHS ... F'(0)>0	33	38	5
101	LIM (X APPROACHES POSITIVE INFINITY) (2X	33	59	3
41	THE GRAPH OF THE CURVE ... INTERSECTS THE	34	84	1
27	WHICH OF THESE IS THE SKETCH OF THE GRAPH	35	68	1
55	... THE FUNCTION F COULD ONLY BE GIVEN BY	35	73	1
87	IF LOG N = N THEN LOG N**2 IS EQUAL TO	36	88	1
26	GIVEN LOG (BASE B) 2 = 1/3 LOG (BASE B)	38	87	1
12	WHICH OF THE FOLLOWING IS (ARE) TRUE FOR	42	96	1
13	WHICH OF THE FOLLOWING COULD BE A SKETCH	48	71	2
42	THE FUNCTIONS F AND G ARE DEFINED BY ...	49	92	2
70	IF XY=1 AND X>0 WHICH OF THE FOLLOWING S	71	92	2

PROBABILITY & STATISTICS

Item ID	Short Text	p-value*	OTL %	Sub-Area
89	A WARNING SYSTEM INSTALLATION CONSISTS OF	18	29	1
75	A TEST IS TAKEN BY ALL FIRST YEAR UNIVERS	21	14	3
74	THE MEAN OF A POPULATION IS 5 AND ITS STA	23	10	2
60	THE SAME TEST WAS GIVEN IN TWO CLASSES.TH	32	77	2
30	A SET OF 24 CARDS IS NUMBERED WITH THE PO	47	38	1
45	FOUR PERSONS WHOSE NAMES BEGIN ... WHAT I	48	39	1
59	IN THE GRAPH RAINFALL (IN CENTIMETERS) I	78	88	2

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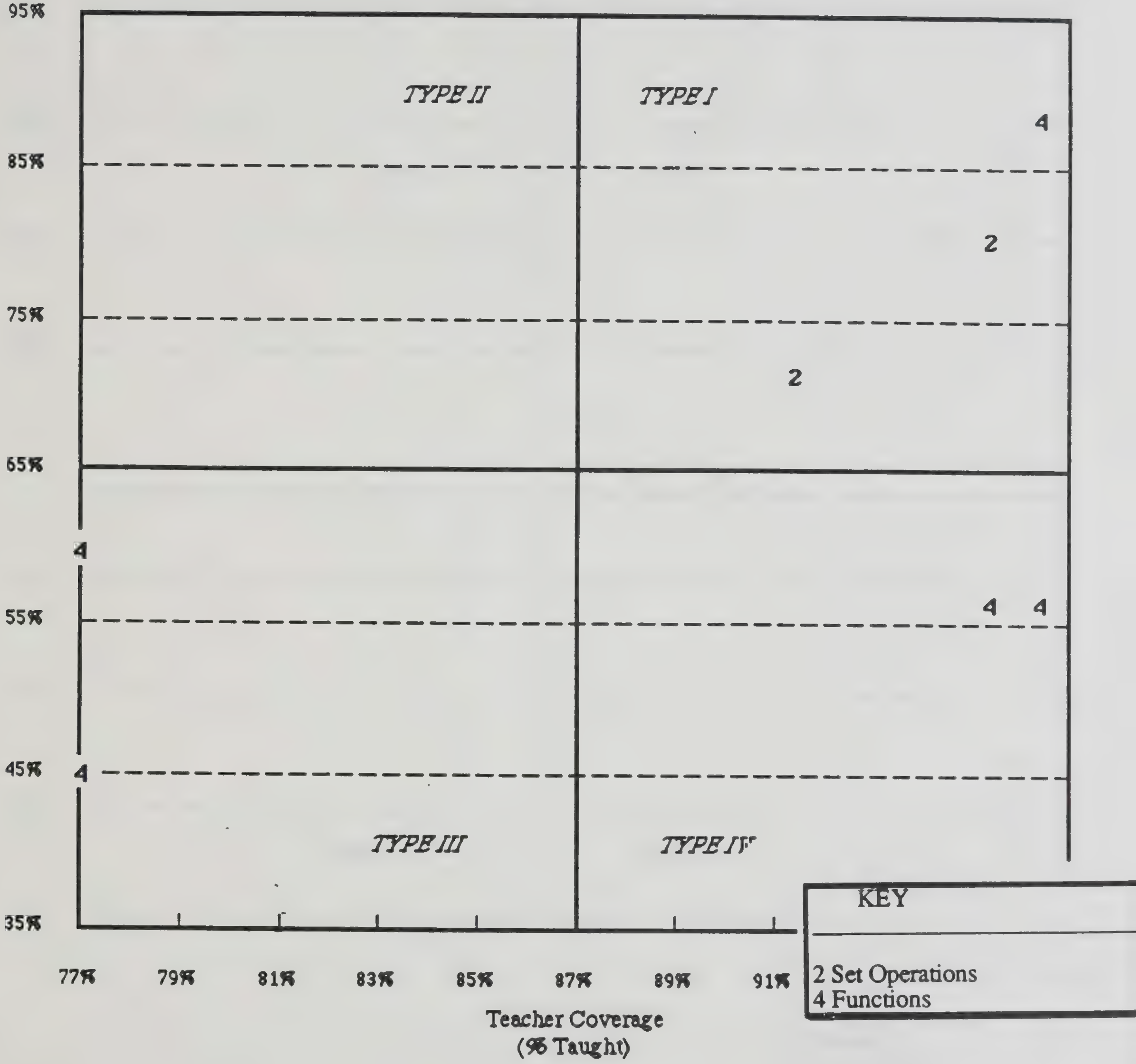
* Note: Items are ordered by p-value.

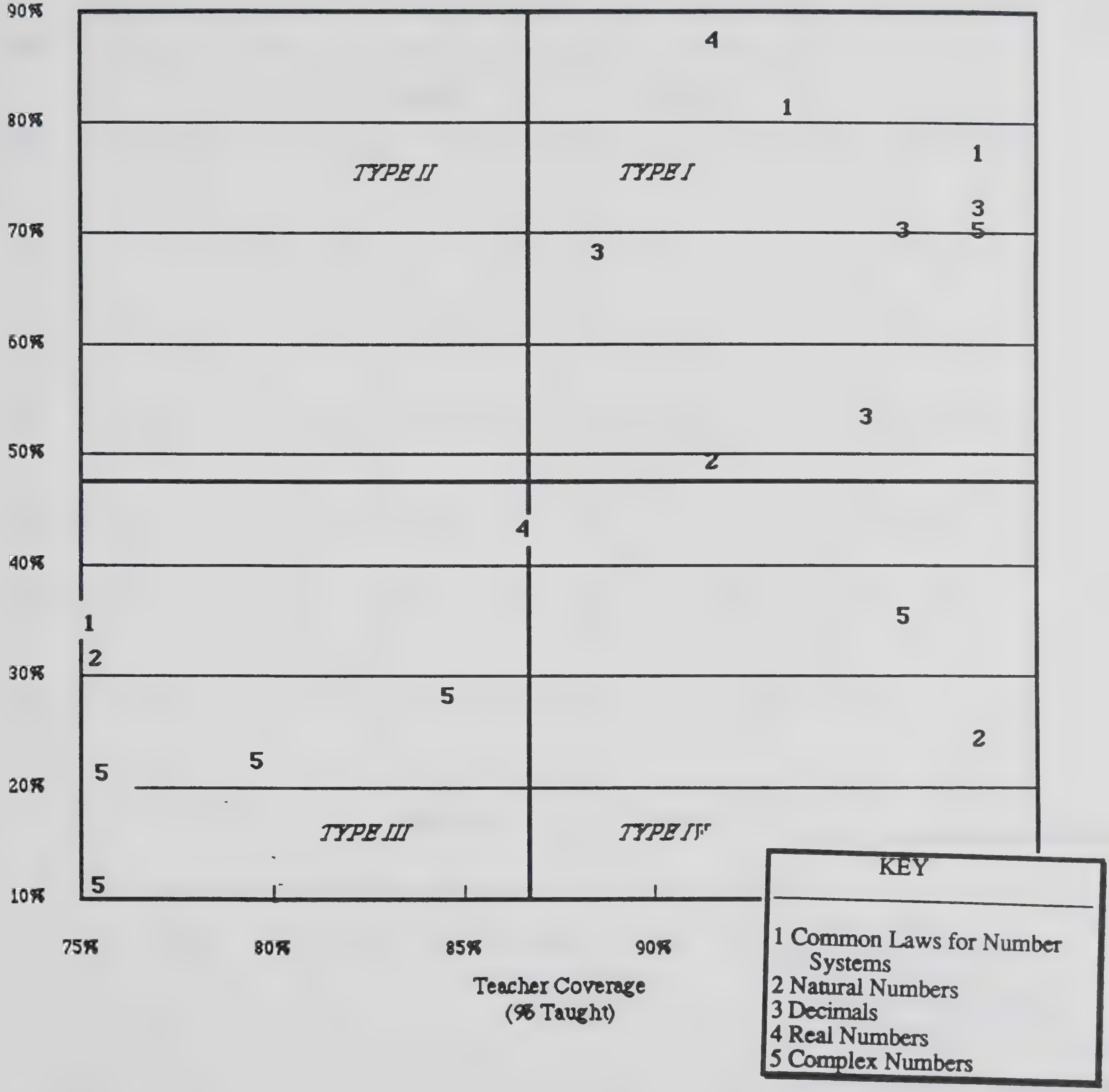
United States
Population B

Sets & Relations:
Calculus Classes



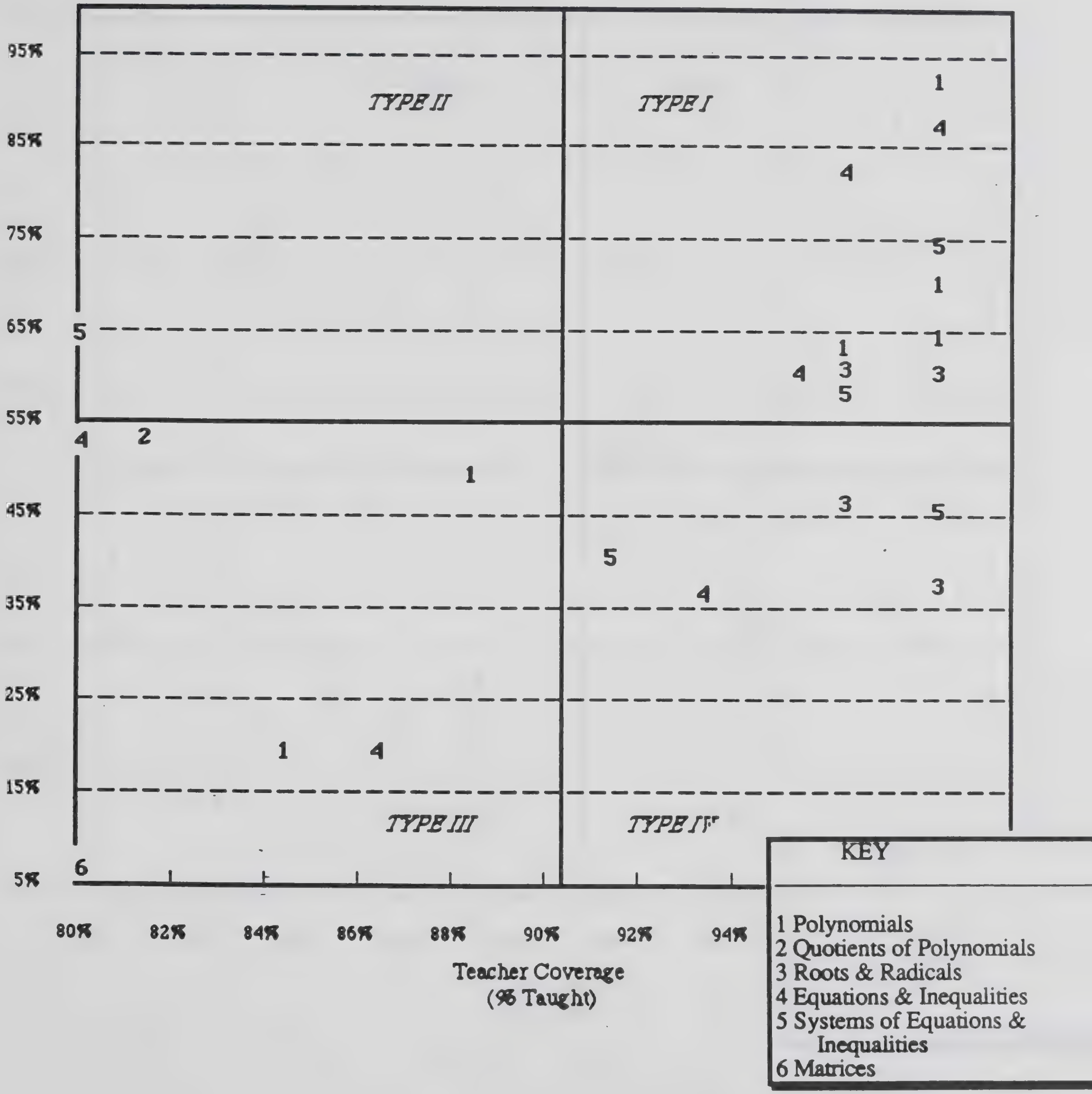
United States
Population B

Number Systems:
Calculus Classes



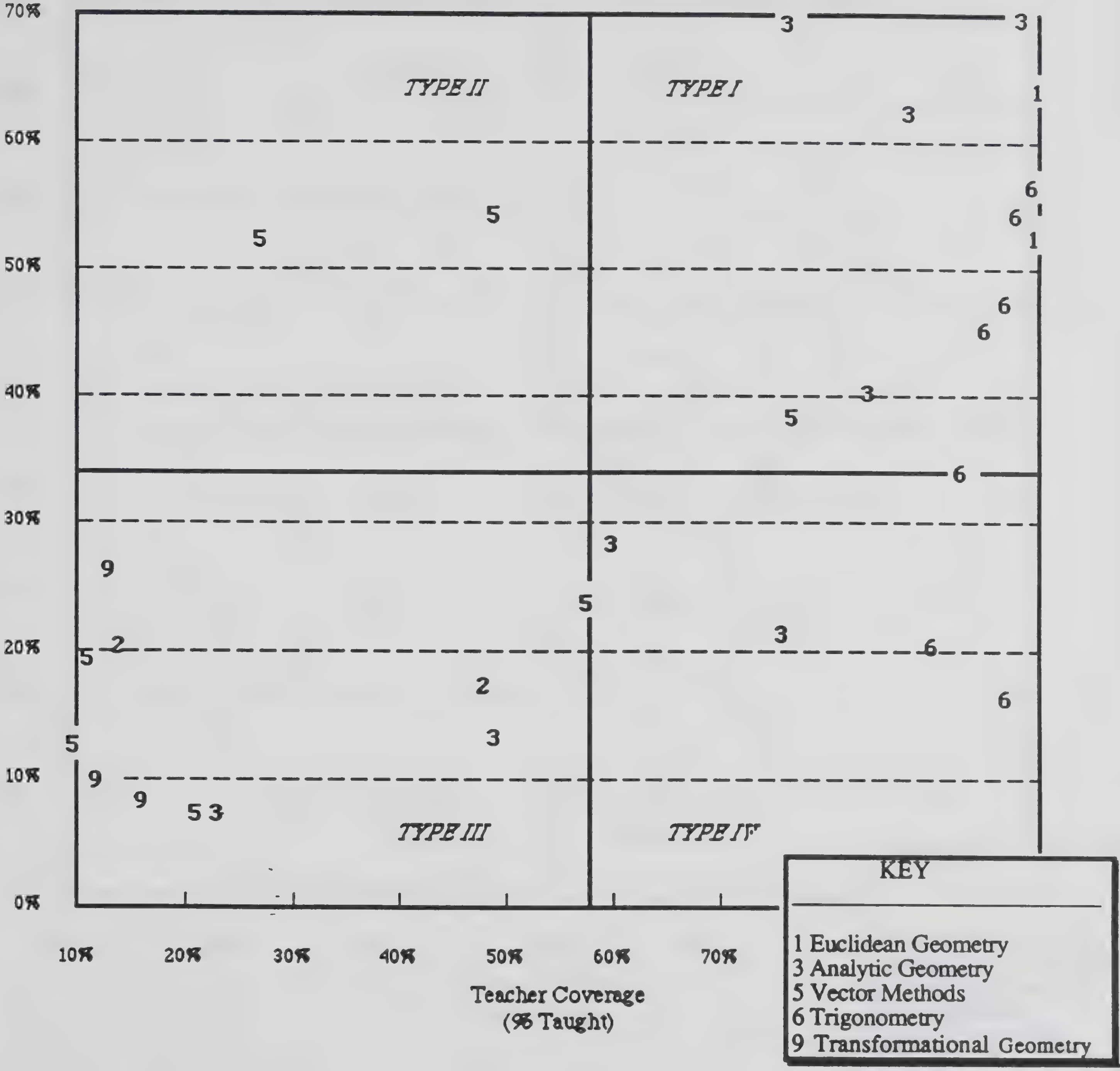
United States
Population B

Algebra:
Calculus Classes



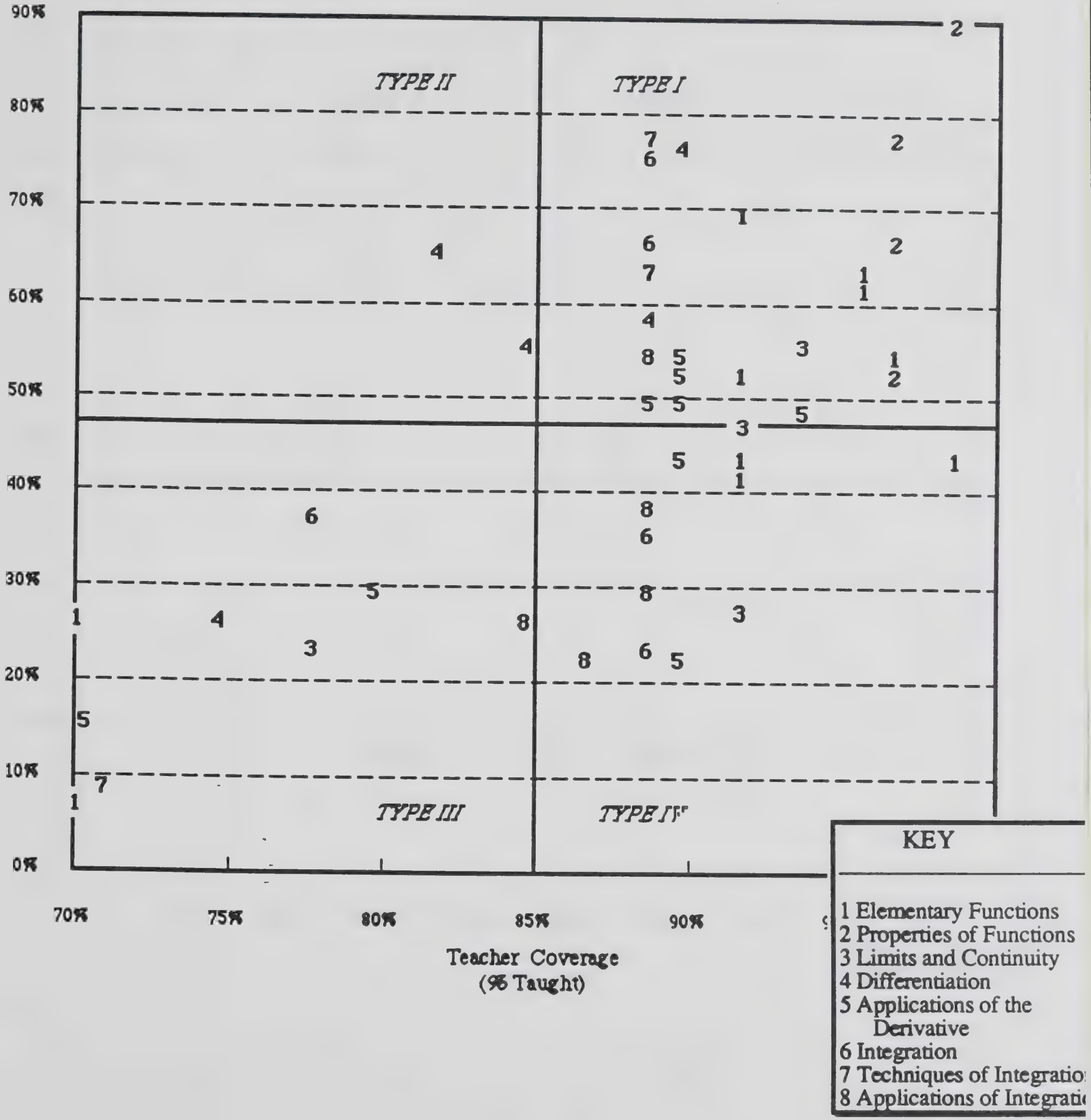
United States
Population B

Geometry:
Calculus Classes



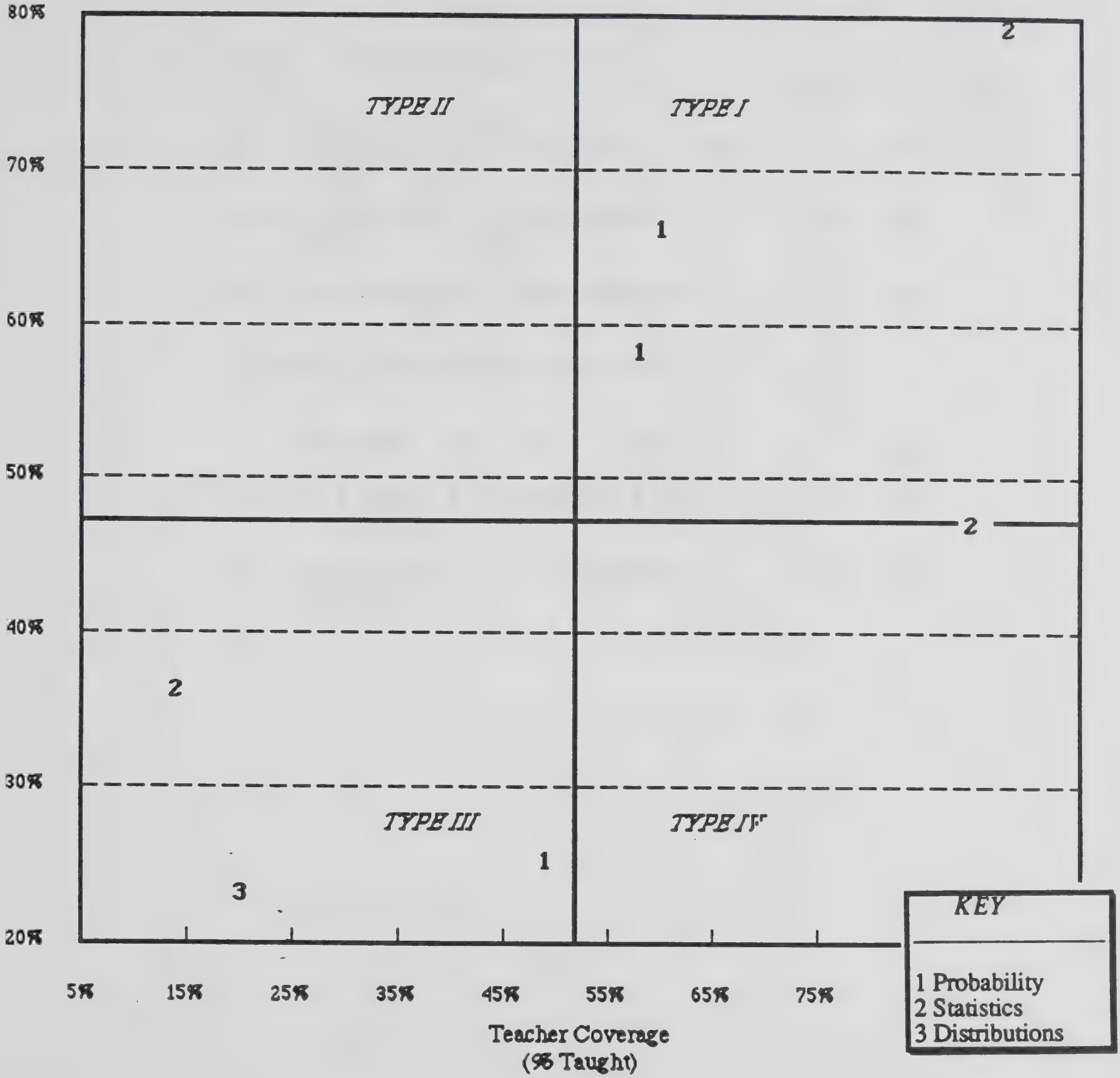
United States
Population B

Elementary Functions & Analysis:
Calculus Classes



United States
Population B

Probability & Statistics:
Calculus Classes



POPULATION B: CALCULUS CLASSES

SETS & RELATIONS

Item ID	Short Text	p-value	OTL %	Sub-Area
76	A REAL VALUED FUNCTION ... IS SAID TO BE	45	65	4
91	A FUNCTION F IS DEFINED BY F(X) = ... <ST	56	96	4
61	THE INVERSE OF THE FUNCTION <(-2 0) (-1	56	95	4
16	LET A FUNCTION BE DEFINED BY F(X Y)=X	61	72	4
1	IF X AND Y ARE SETS THEN	71	91	2
31	THE SYMBOL P INTERSECT Q REPRESENTS THE	80	95	2
46	A FUNCTION F ... IS DEFINED BY F(X)=2**X.	88	96	4

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* Note: Items are ordered by p-value.

NUMBER SYSTEMS

Item ID	Short Text	p-value*	OTL %	Sub-Area
93	Z IS A COMPLEX NUMBER WITH MODULUS ROOT 2	11	65	5
34	THE ORIGIN Z1 Z3 AND Z2 ARE THE CONSEC	22	61	5
18	IF Z=COS(PI/6) + I*SIN(PI/6) THEN	22	79	5
78	IF A = 2**3 * 5**2 * 7 AND B = 3**2 * 5**	24	98	2
135	IF Z = (ROOT 3 + I)/2 THEN Z**60 IS EQUAL TO	28	84	5
33	IF A SUB(1)= 1 AND A SUB(N+1)= A SUB(N)+2	31	68	2
62	IF U=3+I AND V=-2-2I THEN U/V IS EQUAL T	35	96	5
3	AN OPERATION * (ON THE SET OF REAL NUMBER	35	74	1
47	IF 10**A = 4 THEN 10**(1+2A) IS EQUAL TO	43	86	4
64	ACCORDING TO ONE PLAN FOR TRAVELLING TO M	49	91	2
32	GIVEN THAT ROOT 600 IS APPROX 24.4949 AN	53	95	3
48	THE SPEED OF AN OBJECT INCREASES UNIFORML	68	88	3
64	ACCORDING TO ONE PLAN FOR TRAVELLING TO M	70	96	3

* Note: Items are ordered by p-value.

94	... WHAT IS BAR .7 + BAR .4 ? (BAR = REPE	70	96	3
92	THE COMPLEX NUMBER (1 + I)**2 IS EQUAL TO	70	98	5
49	8/(3-ROOT 2) IS EQUAL TO	72	98	3
2	FOR ALL RATIONAL NUMBERS A B C AND D	77	98	1
63	... WHICH ... IS IDENTICAL TO THE SET OF	81	93	1
77	IF 3**(X+Y) = 81 AND 25**(X/2) = 5 THEN	87	91	4

ALGEBRA

Item ID	Short Text	p-value*	OTL %	Sub-Area
20	X AND Y . . . THE PRODUCT OF THE MATRICES	8	40	6
8	P IS A POLYNOMIAL IN X OF DEGREE M AND Q	19	84	1
21	ACCORDING TO THE GRAPH AX+B>CX**2 WHEN	19	86	4
7	A STATIONER WANTS TO MAKE A CARD 8CMS LON	36	93	4
81	... FOR WHICH X CAN YOU DEFINE Y BY Y = X	37	98	3
17	THE NUMBER OF PAIRS OF INTEGER VALUES OF	40	91	5
4	3A**(1/2) * 3A**(-1/2) =	45	98	3
51	A PIECE OF WIRE 52 CM LONG IS CUT INTO TW	45	98	5
96	GIVEN THAT A=>0 6TH ROOT (A**5) IS EQUA	46	96	3
95	WHEN (1 + P)**6 IS EXPANDED THE COEFFICI	49	88	1
65	IF (X-1)/(X**2 + 3X + 2)=(P/(X+1)) + (Q/(	53	81	2
50	TWO MATHEMATICAL MODELS ARE PROPOSED TO P	53	72	4
5	WHICH OF THE FOLLOWING POINTS LIE IN THE	58	96	5
97	... HOW MANY HOURS WILL IT TAKE THE EXPRE	60	95	4

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* Note: Items are ordered by p-value.

80	IF X>0 Y>0 AND X<>Y THEN 1/(RCOT X - R	60	98	3
67	IF X IS A REAL NUMBER THEN Y DEFINED BY	62	96	3
19	WHICH OF THE FOLLOWING . . ARE FACTORS OF	63	96	1
79	IF 2X**2 - 12X + 9 = 2(X-A)**2 + B THEN	64	98	1
38	A CERTAIN NUMBER OF STUDENTS ARE TO BE AC	64	77	5
6	THE CURVE DEFINED BY Y=3X(X-2)(2X+1) INTE	70	98	1
37	... WHAT IS THE SOLUTION OF THE SIMULTANE	74	98	5
35	WHAT ARE ALL VALUES OF X FOR WHICH THE IN	82	96	4
82	FOR THE EQUATION X**2 - 5X + 6 = 0	87	98	4
36	P(N)=...P(N) IS NOT DEFINED FOR	92	98	2
66	THE SOLUTION SET FOR THE EQUATION (1-2X)(	92	98	1

GEOMETRY

Item ID	Short Text	p-value*	OTL %	Sub-Area
134	LET E BE THE EUCLIDEAN PLANE AND F BE THE MAPPING	7	19	5
121	... F G H ... WHICH OF THOSE MAPPINGS A	7	21	3
123	WHICH COMPLEX TRANSFORMATION IS ASSOCIATED WITH	8	14	9
132	LET F BE THE MAPPING FROM THE COMPLEX PLANE C	10	9	9
136	CONSIDER THE SUBSPACES OF THE VECTOR SPACE R(3)	12	2	5
131	... THE SET OF POINTS M SUCH THAT MA**2 +	13	47	3
23	AN ANGLE THETA IS KNOWN TO BE BETWEEN 90	16	95	6
126	THE COORDINATES OF A MOVING POINT M AT TI	17	46	2
100	VECTOR R ... CAN BE EXPRESSED AS COS THET	19	9	5
85	IN ANY TRIANGLE ... A/SIN A = B/SIN B = C	20	88	6
128	IN THE PLANE E T SUB B IS THE TRANSLATION	20	12	2
53	WHAT IS THE EQUATION IN X AND Y OF THE CU	21	74	3
40	POINT B IS ON LINE AC.IF VECTOR AC = 3 VE	24	56	5

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* Note: Items are ordered by p-value.

130	... WHICH OF THE FOLLOWING TRANSFORMATION	26	11	9
11	L IS THE LINE DETERMINED BY THE EQUATION	28	58	3
68	IN THE FIGURE ABOVE SEGMENT PQ IS PERPEN	34	91	6
22	THE RECTANGULAR COORDINATES OF THREE POINTS	38	75	5
133	FOR WHICH OF THE FOLLOWING VALUES OF M IS	40	82	3
39	IF COS(THETA) = 1/2 THEN COS (2*THETA) I	45	93	6
10	IN THE INTERVAL 2 PI <= X <= 4 PI THE SO	47	95	6
52	FIND THE DIFFERENCE VECTOR B - VECTOR A O	52	25	5
99	IF UV = 2 YZ = 3 XU = 3 AND SEGMENT U	53	98	1
84	... COUNTEREXAMPLE TO SHOW THAT SIN(A+B)	54	96	6
98	PQRSTU IS A REGULAR HEXAGON IN WHICH VECT	54	47	5
25	WHICH OF THE FOLLOWING IS NEGATIVE	56	98	6
69	ONE SIDE OF AN EQUILATERAL TRIANGLE LIES	62	86	3
9	IN A CARTESIAN COORDINATE SYSTEM WHAT IS	64	98	1
83	THE SLOPE OF THE LINE THROUGH THE TWO POINTS	74	98	3
4	AS LINE AB ROTATES ABOUT LINE AC IN SPACE	81	72	3

ELEMENTARY FUNCTIONS & ANALYSIS

Item ID	Short Text	p-value*	OTL %	Sub-Area
71	LET Y=4X**3 ... WHEN LOG X IS PLOTTED AGA	21	37	1
57	IF THE GRAPH OF THE EQUATION ... HAS A PO	22	89	5
120	THE AREA ENCLOSED BETWEEN THE CURVE ... A	22	86	8
73	THE VALUE OF DEFINITE INTEGRAL (1/(X**2 +	23	67	7
86	THE SUM OF ... 1 -(1/2) + (1/4) - (1/8) +	23	77	3
109	GIVEN THAT 3 F’(X) = X**2 - 5 AND F(2) =	23	88	6
44	... INTEGRAL F(X) DX ATTAINS ITS GREATEST	26	84	8
122	F IS AN EVEN FUNCTION AND IS DIFFERENTIABLE AT 0.	26	74	4
108	THE VALUE OF LIMIT AS H APPROACH 0 OF	27	91	3
111	THE INTERSECTION OF A CYLINDER WITH A PLA	29	79	5
58	THE AREA ENCLOSED BETWEEN THE CURVE ...AN	29	88	8
124	THE CORDINATES OF A MOVING POINT AT TIME	32	19	5
56	A RADIO-ACTIVE ELEMENT DECOMPOSES ACCORDI	33	54	1

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* Note: Items are ordered by *p*-value.

116	DEFINITE INTEGRAL (12X/((2X**2 + 1)**2))	35	88	6
114	THE FUNCTION F IS DEFINED BY F(X) = INTEG	37	77	6
115	S1 IS THE AREA ENCLOSED BY ... THE VALUE	38	88	8
43	THE GRAPH ABOVE IS THE REPRESENTATION OF	41	91	1
112	THE FUNCTION DEFINED BY ... HAS A RELATIV	43	89	5
12	WHICH OF THE FOLLOWING IS (ARE) TRUE FOR	43	98	1
54	FOR WHAT VALUES OF X DOES THE ... STRAIGHT	43	91	1
110	THE FUNCTION F IS ... CONTINUOUS AT X = 1	47	91	3
88	THE VELOCITY OF A BODY ... HOW MANY SECONDS	48	93	5
28	THE GRAPH OF A FUNCTION F HAS A POINT	49	89	5
119	WHICH OF THE FOLLOWING GRAPHS ... F'(0)>0	49	88	5
55	... THE FUNCTION F COULD ONLY BE GIVEN BY	52	91	1
102	THE FUNCTION F DEFINED BY ... IS NEGATIVE	52	96	2
117	THE CURVE DEFINED BY ... HAS A RELATIVE M	52	89	5
29	THE L ... IS THE GRAPH OF... DEFINITE INT	54	88	8
104	AT WHICH POINT DOES THE CURVE Y = 3X**2 -	54	89	5
27	WHICH OF THESE IS THE SKETCH OF THE GRAPH	54	96	1
101	LIM (X APPROACHES POSITIVE INFINITY) (2X	55	93	3

118	IF X = 2 COS T AND Y = SIN T FIND DY/DX	55	84	4
72	THE DERIVATIVE WITH RESPECT TO X OF 4/(RO	58	88	4
26	GIVEN LOG (BASE B) 2 = 1/3 LOG (BASE B)	61	95	1
41	THE GRAPH OF THE CURVE ... INTERSECTS THE	63	95	1
113	DEFINITE INTEGRAL (X - (1/X**2)) DX IS EQ	63	88	7
106	THE FUNCTION F IS DEFINED BY ... THEN F'(	65	81	4
103	DEFINITE INTEGRAL (X**3 - X) DX IS EQUAL	66	88	6
13	WHICH OF THE FOLLOWING COULD BE A SKETCH	66	96	2
87	IF LOG N = N THEN LOG N**2 IS EQUAL TO	69	91	1
107	INDEFINITE INTEGRAL ROOT (X -1) DX IS EQ	75	88	6
14	A FUNCTION IS DEFINED BY . . .	76	89	4
42	THE FUNCTIONS F AND G ARE DEFINED BY ...	77	96	2
15	INDEFINITE INTEGRAL (X-1)**2 DX IS EQUAL	77	88	7
70	IF XY=1 AND X>0 WHICH OF THE FOLLOWING S	90	98	2

PROBABILITY & STATISTICS

Item ID	Short Text	p-value*	OTL %	Sub-Area
75	A TEST IS TAKEN BY ALL FIRST YEAR UNIVERS	23	18	3
89	A WARNING SYSTEM INSTALLATION CONSISTS OF	25	47	1
74	THE MEAN OF A POPULATION IS 5 AND ITS STA	36	12	2
60	THE SAME TEST WAS GIVEN IN TWO CLASSES.TH	47	88	2
30	A SET OF 24 CARDS IS NUMBERED WITH THE PO	58	56	1
45	FOUR PERSONS WHOSE NAMES BEGIN ... WHAT I	66	58	1
59	IN THE GRAPH RAINFALL (IN CENTIMETERS) I	79	91	2

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* Note: Items are ordered by p-value.

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3	ITEM	GRID	SUB-	REMEDIAL	REMEDIAL	TYPICAL	TYPICAL	ENRICHED	ENRICHED	ALGEBRA	ALGEBRA
4	ID	AREA	AREA								
5				OTL	P-VALUE	OTL	P-VALUE	OTL	P-VALUE	OTL	P-VALUE
6											
7	1	0	1	90%	46%	94%	64%	91%	78%	95%	82%
8	2	0	1	20%	28%	30%	37%	32%	49%	21%	59%
9	41	0	1	97%	73%	95%	83%	94%	89%	92%	90%
10	42	0	1	87%	51%	83%	75%	94%	87%	89%	90%
11	73	0	1	97%	61%	96%	81%	94%	94%	95%	92%
12	74	0	1	23%	17%	19%	31%	32%	49%	16%	58%
13	105	0	1	70%	11%	87%	16%	88%	33%	87%	49%
14	106	0	1	47%	29%	52%	48%	71%	68%	87%	75%
15	137	0	1	63%	38%	82%	52%	82%	62%	87%	67%
16	138	0	1	87%	45%	85%	72%	79%	83%	84%	93%
17	3	0	2	97%	29%	96%	52%	94%	78%	92%	84%
18	4	0	2	97%	56%	96%	76%	94%	89%	95%	90%
19	43	0	2	60%	17%	78%	28%	94%	51%	89%	64%
20	44	0	2	83%	34%	88%	42%	94%	66%	92%	66%
21	75	0	2	73%	37%	85%	52%	94%	75%	87%	81%
22	76	0	2	67%	17%	81%	26%	79%	42%	89%	48%
23	107	0	2	97%	32%	96%	52%	91%	73%	92%	79%
24	139	0	2	97%	41%	96%	58%	91%	79%	95%	77%
25	185	0	2	90%	37%	88%	63%	94%	82%	92%	87%
26	186	0	2	97%	55%	95%	70%	94%	76%	92%	87%
27	187	0	2	97%	33%	96%	62%	94%	82%	95%	87%
28	188	0	2	90%	38%	94%	48%	94%	57%	92%	58%
29	5	0	3	100%	42%	96%	58%	94%	70%	92%	70%
30	6	0	3	80%	15%	82%	34%	85%	56%	87%	57%
31	7	0	3	93%	37%	90%	49%	91%	79%	92%	84%
32	45	0	3	90%	22%	86%	27%	85%	41%	92%	43%
33	77	0	3	73%	50%	75%	56%	82%	66%	79%	76%

	A	B	C	D	E	F	G	H	I	J	K
34	78	0	3	73%	18%	75%	18%	85%	29%	89%	38%
35	108	0	3	100%	27%	96%	57%	94%	81%	95%	79%
36	109	0	3	93%	48%	93%	71%	94%	85%	89%	89%
37	140	0	3	100%	25%	96%	36%	94%	55%	92%	62%
38	141	0	3	50%	34%	68%	47%	76%	62%	87%	72%
39	182	0	3	100%	37%	96%	59%	94%	76%	95%	70%
40	183	0	3	93%	38%	96%	57%	94%	70%	95%	76%
41	184	0	3	80%	24%	80%	37%	88%	62%	76%	66%
42	8	0	4	77%	31%	88%	43%	94%	55%	87%	65%
43	9	0	4	80%	35%	87%	46%	94%	65%	84%	67%
44	46	0	4	93%	29%	93%	44%	94%	65%	92%	66%
45	47	0	4	73%	31%	88%	51%	88%	73%	87%	72%
46	79	0	4	67%	26%	88%	37%	88%	53%	79%	56%
47	110	0	4	83%	24%	85%	40%	91%	65%	92%	68%
48	142	0	4	43%	11%	60%	20%	71%	24%	71%	39%
49	143	0	4	73%	40%	88%	53%	88%	68%	84%	69%
50	177	0	4	80%	31%	92%	43%	88%	70%	92%	64%
51	178	0	4	97%	52%	94%	65%	94%	79%	95%	82%
52	179	0	4	83%	18%	92%	31%	94%	53%	92%	50%
53	180	0	4	60%	21%	67%	19%	76%	23%	76%	31%
54	181	0	4	60%	34%	79%	53%	85%	76%	87%	79%
55	189	0	4	93%	29%	93%	55%	94%	68%	87%	70%
56	190	0	4	80%	28%	88%	48%	91%	68%	92%	73%
57	191	0	4	60%	14%	78%	11%	91%	22%	84%	39%
58	192	0	4	63%	25%	68%	43%	88%	63%	89%	64%
59	80	0	5	93%	45%	93%	60%	91%	83%	95%	83%
60	111	0	5	80%	20%	82%	39%	85%	65%	89%	79%
61	144	0	5	37%	27%	40%	36%	59%	49%	55%	67%
62	10	0	6	73%	31%	90%	53%	94%	68%	92%	81%
63	48	0	6	47%	47%	72%	60%	76%	76%	95%	84%
64	112	0	6	67%	30%	85%	38%	88%	54%	84%	69%
65	11	0	8	43%	17%	49%	34%	82%	66%	71%	79%
66	81	0	8	33%	21%	52%	26%	76%	47%	79%	69%

	A	B	C	D	E	F	G	H	I	J	K
67	145	0	8	40%	27%	54%	40%	82%	69%	79%	80%
68	146	0	9	73%	27%	85%	59%	79%	74%	79%	81%
69	12	1	1	60%	21%	94%	49%	88%	77%	95%	86%
70	13	1	1	73%	21%	89%	39%	88%	60%	95%	64%
71	49	1	1	43%	39%	89%	59%	88%	80%	92%	86%
72	82	1	1	47%	20%	81%	42%	85%	72%	89%	75%
73	113	1	1	60%	20%	93%	32%	91%	63%	95%	71%
74	14	1	2	50%	26%	83%	45%	76%	73%	92%	80%
75	84	1	3	63%	21%	72%	30%	88%	42%	58%	38%
76	172	1	3	43%	15%	66%	19%	76%	22%	76%	25%
77	15	1	4	20%	18%	42%	18%	68%	42%	92%	84%
78	16	1	4	20%	24%	21%	25%	47%	39%	84%	43%
79	52	1	4	20%	32%	54%	49%	76%	56%	92%	62%
80	85	1	4	53%	25%	81%	44%	91%	70%	95%	68%
81	115	1	4	30%	9%	84%	28%	88%	66%	95%	77%
82	116	1	4	17%	24%	61%	32%	68%	52%	95%	60%
83	148	1	4	40%	14%	60%	29%	68%	47%	84%	68%
84	149	1	4	17%	35%	35%	48%	59%	67%	89%	80%
85	195	1	4	33%	13%	55%	39%	65%	67%	92%	77%
86	53	1	5	17%	20%	73%	50%	82%	80%	95%	86%
87	88	1	5	27%	20%	24%	19%	62%	33%	84%	62%
88	17	1	6	53%	44%	87%	64%	88%	84%	92%	87%
89	18	1	6	37%	26%	70%	32%	79%	54%	92%	72%
90	54	1	6	40%	42%	64%	64%	76%	86%	92%	88%
91	86	1	6	47%	31%	76%	41%	85%	66%	89%	75%
92	87	1	6	57%	10%	75%	15%	74%	22%	87%	33%
93	117	1	6	27%	36%	56%	51%	76%	73%	95%	84%
94	118	1	6	30%	34%	47%	42%	65%	45%	87%	59%
95	151	1	6	20%	13%	50%	12%	71%	28%	92%	60%
96	196	1	6	27%	41%	63%	49%	74%	69%	92%	78%
97	19	1	7	23%	27%	38%	34%	68%	49%	68%	54%
98	55	1	7	20%	11%	29%	19%	47%	37%	82%	53%
99	152	1	7	47%	49%	71%	68%	71%	83%	95%	89%

	A	B	C	D	E	F	G	H	I	J	K
100	120	1	10	37%	18%	39%	24%	50%	25%	71%	32%
101	21	2	1	47%	25%	72%	33%	82%	48%	63%	45%
102	22	2	1	40%	38%	61%	52%	79%	76%	55%	72%
103	57	2	1	50%	30%	66%	43%	76%	55%	68%	63%
104	89	2	1	60%	36%	80%	53%	91%	67%	84%	66%
105	121	2	1	73%	33%	81%	50%	91%	69%	74%	66%
106	23	2	2	13%	20%	25%	28%	29%	43%	11%	44%
107	58	2	2	37%	29%	59%	29%	76%	41%	53%	39%
108	59	2	2	17%	12%	42%	14%	62%	21%	39%	19%
109	90	2	2	13%	24%	33%	41%	50%	60%	32%	63%
110	122	2	2	47%	30%	80%	49%	91%	71%	79%	67%
111	123	2	2	40%	19%	54%	20%	68%	25%	63%	24%
112	128	2	2	30%	22%	53%	29%	65%	42%	58%	39%
113	155	2	2	23%	24%	42%	49%	53%	66%	58%	65%
114	24	2	3	23%	33%	56%	40%	62%	57%	53%	56%
115	25	2	3	27%	17%	56%	15%	74%	24%	47%	25%
116	91	2	3	63%	54%	72%	68%	85%	81%	68%	80%
117	26	2	4	33%	31%	58%	35%	71%	54%	63%	61%
118	125	2	4	27%	13%	49%	26%	59%	41%	32%	34%
119	156	2	4	27%	34%	49%	39%	71%	57%	42%	58%
120	197	2	4	23%	26%	48%	40%	53%	60%	50%	54%
121	27	2	6	30%	16%	51%	20%	71%	30%	66%	37%
122	93	2	6	30%	14%	51%	22%	74%	37%	58%	47%
123	193	2	6	23%	39%	29%	45%	44%	66%	45%	57%
124	28	2	7	43%	28%	60%	44%	71%	64%	89%	78%
125	29	2	7	17%	17%	28%	19%	41%	29%	82%	43%
126	126	2	7	37%	17%	38%	25%	65%	53%	84%	77%
127	169	2	7	30%	32%	54%	30%	68%	39%	84%	49%
128	175	2	7	27%	14%	51%	23%	74%	46%	71%	51%
129	62	2	8	23%	11%	41%	16%	56%	36%	47%	26%
130	127	2	8	17%	20%	42%	26%	56%	44%	24%	43%
131	30	2	9	13%	45%	27%	68%	35%	81%	16%	84%
132	63	2	9	3%	16%	8%	20%	21%	30%	13%	34%

	A	B	C	D	E	F	G	H	I	J	K
133	96	2	9	13%	26%	14%	33%	24%	54%	16%	49%
134	158	2	9	13%	35%	16%	55%	21%	68%	18%	74%
135	31	2	12	17%	46%	26%	58%	35%	76%	16%	80%
136	159	2	12	10%	41%	15%	59%	26%	72%	16%	65%
137	198	2	12	20%	24%	20%	32%	32%	46%	21%	51%
138	170	2	15	3%	25%	1%	23%	3%	24%	3%	30%
139	171	2	15	7%	21%	2%	21%	3%	16%	5%	23%
140	173	2	15	7%	19%	1%	16%	0%	14%	3%	18%
141	174	2	15	10%	23%	24%	36%	24%	53%	13%	62%
142	65	3	1	7%	52%	35%	70%	35%	84%	37%	88%
143	32	3	2	47%	42%	76%	63%	79%	86%	87%	85%
144	97	3	2	53%	41%	70%	48%	76%	56%	74%	70%
145	131	3	2	47%	35%	65%	50%	56%	71%	74%	74%
146	33	3	3	57%	52%	77%	80%	85%	93%	79%	92%
147	34	3	3	63%	58%	80%	75%	82%	86%	82%	88%
148	66	3	3	50%	34%	58%	52%	71%	74%	71%	76%
149	98	3	3	33%	39%	64%	63%	53%	77%	76%	82%
150	129	3	3	17%	17%	27%	17%	35%	19%	45%	17%
151	160	3	3	50%	41%	65%	56%	65%	67%	76%	78%
152	161	3	3	50%	38%	64%	44%	65%	62%	71%	67%
153	35	3	4	70%	26%	86%	39%	71%	60%	87%	69%
154	67	3	4	80%	61%	90%	71%	94%	84%	95%	80%
155	99	3	4	47%	31%	71%	44%	65%	56%	74%	63%
156	130	3	4	67%	24%	79%	40%	85%	53%	87%	68%
157	132	3	4	83%	70%	94%	82%	94%	89%	95%	89%
158	162	3	4	53%	26%	77%	48%	76%	64%	79%	75%
159	163	3	6	17%	28%	38%	43%	47%	54%	45%	54%
160	36	4	1	60%	24%	54%	36%	76%	41%	55%	51%
161	68	4	1	77%	50%	85%	69%	85%	82%	84%	85%
162	100	4	1	67%	21%	71%	36%	85%	56%	76%	58%
163	101	4	1	80%	47%	75%	62%	85%	74%	84%	83%
164	133	4	1	67%	28%	72%	36%	88%	39%	82%	47%
165	38	4	2	67%	22%	83%	43%	91%	65%	79%	68%

	A	B	C	D	E	F	G	H	I	J	K
166	69	4	2	67%	69%	82%	87%	76%	94%	84%	94%
167	102	4	2	57%	25%	74%	32%	76%	42%	79%	41%
168	134	4	2	37%	24%	45%	40%	56%	48%	47%	62%
169	164	4	2	80%	26%	87%	49%	94%	71%	84%	81%
170	167	4	2	63%	36%	63%	50%	79%	62%	76%	70%
171	72	4	3	57%	21%	75%	30%	85%	49%	84%	53%
172	135	4	3	50%	33%	72%	47%	79%	63%	71%	69%
173	165	4	3	90%	23%	87%	38%	91%	56%	87%	59%
174	37	4	4	43%	18%	67%	24%	85%	30%	71%	35%
175	39	4	4	53%	30%	78%	46%	91%	61%	82%	67%
176	40	4	4	30%	25%	62%	23%	79%	40%	63%	38%
177	70	4	4	67%	21%	79%	34%	88%	47%	79%	40%
178	71	4	4	40%	13%	54%	19%	71%	37%	58%	37%
179	103	4	4	53%	28%	74%	37%	88%	62%	84%	67%
180	104	4	4	43%	22%	58%	42%	82%	52%	76%	60%
181	136	4	4	63%	16%	67%	14%	85%	16%	68%	21%
182	166	4	4	33%	10%	59%	14%	71%	22%	66%	27%
183	168	4	4	37%	11%	51%	9%	50%	12%	61%	14%
184	194	4	4	50%	24%	62%	29%	88%	39%	63%	40%
185	199	4	4	30%	43%	35%	61%	50%	67%	24%	79%
186											
187											
188											
189											
190											
191											
192											
193											
194											
195											
196											
197											
198											

	A	B	C	D	E	F	G
1	ITEM	GRID	SUB-	CALCULUS	CALCULUS	PRE-	PRE-
2	ID		AREA			CALCULUS	CALCULUS
3							
4	1	1	2	91%	71%	86%	51%
5	16	1	4	72%	61%	63%	52%
6	31	1	2	95%	80%	91%	66%
7	46	1	4	96%	88%	94%	81%
8	61	1	4	95%	56%	88%	51%
9	76	1	4	65%	45%	39%	38%
10	91	1	4	96%	56%	83%	32%
11	2	2	1	98%	77%	97%	55%
12	3	2	1	74%	35%	69%	28%
13	18	2	5	79%	22%	68%	20%
14	32	2	3	95%	53%	90%	49%
15	33	2	2	68%	31%	67%	20%
16	34	2	5	61%	22%	48%	20%
17	47	2	4	86%	43%	82%	32%
18	48	2	3	88%	68%	61%	46%
19	49	2	3	98%	72%	97%	56%
20	62	2	5	96%	35%	93%	32%
21	63	2	1	93%	81%	89%	61%
22	64	2	2	91%	49%	83%	42%
23	77	2	4	91%	87%	87%	69%
24	78	2	2	98%	24%	96%	19%
25	92	2	5	98%	70%	94%	55%
26	93	2	5	65%	11%	54%	8%
27	64	2	3	96%	70%	88%	51%
28	135	2	5	84%	28%	66%	20%
29	4	3	3	98%	45%	96%	17%
30	5	3	5	96%	58%	88%	35%
31	6	3	1	98%	70%	95%	42%
32	7	3	4	93%	36%	75%	26%
33	8	3	1	84%	19%	70%	10%
34	17	3	5	91%	40%	88%	37%
35	19	3	1	96%	63%	94%	48%
36	20	3	6	40%	8%	45%	15%
37	21	3	4	86%	19%	53%	13%
38	35	3	4	96%	82%	96%	63%
39	36	3	2	98%	92%	95%	73%
40	37	3	5	98%	74%	95%	56%
41	38	3	5	77%	64%	72%	47%
42	50	3	4	72%	53%	54%	45%
43	51	3	5	98%	45%	79%	32%
44	65	3	2	81%	53%	70%	30%
45	66	3	1	98%	92%	97%	81%
46	67	3	3	96%	62%	95%	38%
47	79	3	1	98%	64%	88%	38%

	A	B	C	D	E	F	G
48	80	3	3	98%	60%	93%	39%
49	81	3	3	98%	37%	95%	22%
50	82	3	4	98%	87%	97%	76%
51	95	3	1	88%	49%	79%	30%
52	96	3	3	96%	46%	94%	23%
53	97	3	4	95%	60%	95%	37%
54	9	4	1	98%	64%	95%	48%
55	10	4	6	95%	47%	94%	32%
56	11	4	3	58%	28%	48%	19%
57	22	4	5	75%	38%	66%	27%
58	23	4	6	95%	16%	91%	15%
59	24	4	3	72%	81%	40%	53%
60	25	4	6	98%	56%	95%	46%
61	39	4	6	93%	45%	94%	31%
62	40	4	5	56%	24%	47%	27%
63	52	4	5	25%	52%	33%	44%
64	53	4	3	74%	21%	38%	18%
65	68	4	6	91%	34%	84%	29%
66	69	4	3	86%	62%	84%	42%
67	83	4	3	98%	74%	96%	55%
68	84	4	6	96%	54%	92%	38%
69	85	4	6	88%	20%	84%	17%
70	98	4	5	47%	54%	46%	48%
71	99	4	1	98%	53%	96%	48%
72	100	4	5	9%	19%	15%	11%
73	121	4	3	21%	7%	10%	15%
74	123	4	9	14%	8%	5%	5%
75	126	4	2	46%	17%	18%	18%
76	128	4	2	12%	20%	5%	17%
77	130	4	9	11%	26%	8%	24%
78	131	4	3	47%	13%	42%	11%
79	132	4	9	9%	10%	4%	8%
80	133	4	3	82%	40%	78%	25%
81	134	4	5	19%	7%	18%	6%
82	136	4	5	2%	12%	3%	13%
83	12	5	1	98%	43%	96%	42%
84	13	5	2	96%	66%	71%	48%
85	14	5	4	89%	76%	37%	25%
86	15	5	7	88%	77%	22%	23%
87	26	5	1	95%	61%	87%	38%
88	27	5	1	96%	54%	68%	35%
89	28	5	5	89%	49%	49%	18%
90	29	5	8	88%	54%	18%	25%
91	41	5	1	95%	63%	84%	34%
92	42	5	2	96%	77%	92%	49%
93	43	5	1	91%	41%	73%	21%
94	44	5	8	84%	26%	18%	11%

	A	B	C	D	E	F	G
95	54	5	1	91%	43%	83%	29%
96	55	5	1	91%	52%	73%	35%
97	56	5	1	54%	33%	41%	24%
98	57	5	5	89%	22%	42%	5%
99	58	5	8	88%	29%	23%	17%
100	70	5	2	98%	90%	92%	71%
101	71	5	1	37%	21%	28%	16%
102	72	5	4	88%	58%	31%	19%
103	73	5	7	67%	23%	11%	16%
104	86	5	3	77%	23%	71%	17%
105	87	5	1	91%	69%	88%	36%
106	88	5	5	93%	48%	45%	15%
107	101	5	3	93%	55%	59%	33%
108	102	5	2	96%	52%	89%	32%
109	103	5	6	88%	66%	22%	22%
110	104	5	5	89%	54%	56%	32%
111	106	5	4	81%	65%	23%	22%
112	107	5	6	88%	75%	19%	18%
113	108	5	3	91%	27%	54%	13%
114	109	5	6	88%	23%	35%	3%
115	110	5	3	91%	47%	62%	18%
116	111	5	5	79%	29%	34%	20%
117	112	5	5	89%	43%	54%	16%
118	113	5	7	88%	63%	22%	28%
119	114	5	6	77%	37%	14%	12%
120	115	5	8	88%	38%	21%	19%
121	116	5	6	88%	35%	17%	22%
122	117	5	5	89%	52%	45%	32%
123	118	5	4	84%	55%	16%	10%
124	119	5	5	88%	49%	38%	33%
125	120	5	8	86%	22%	17%	12%
126	122	5	4	74%	26%	20%	19%
127	124	5	5	19%	32%	4%	14%
128	30	6	1	56%	58%	38%	47%
129	45	6	1	58%	66%	39%	48%
130	59	6	2	91%	79%	88%	78%
131	60	6	2	88%	47%	77%	32%
132	74	6	2	12%	36%	10%	23%
133	75	6	3	18%	23%	14%	21%
134	89	6	1	47%	25%	29%	18%
135	90	7	1	82%	54%	78%	42%
136	105	7	1	65%	44%	44%	29%
137	125	7	1	53%	34%	37%	29%
138	129	7	1	67%	21%	45%	13%
139							
140							
141							

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SIMS POPULATION A: BASIC STATISTICS                                                      14:27 TUESDAY, AUGUST 20, 1991    1
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

VARIABLE   LABEL                                            N      N MISSING        MEAN        STANDARD
                                                                                                DEVIATION

------------------------------------------- CLTYPE=REMEDIAL -------------------------------------------

ARITHOTL   OPPORTUNITY-TO-LEARN -- ARITHMETIC              30              0        0.76            0.18
ARITH      P-VALUE -- ARITHMETIC                           30              0        0.32            0.13
ALGOTL     OPPORTUNITY-TO-LEARN -- ALGEBRA                 30              0        0.37            0.28
ALG        P-VALUE -- ALGEBRA                              30              0        0.25            0.10
GEOMOTL    OPPORTUNITY-TO-LEARN -- GEOMETRY                30              0        0.27            0.23
GEOM       P-VALUE -- GEOMETRY                             30              0        0.26            0.09
STATOTL    OPPORTUNITY-TO-LEARN -- STATISTICS              30              0        0.49            0.30
STAT       P-VALUE -- STATISTICS                           30              0        0.40            0.13
MEASOTL    OPPORTUNITY-TO-LEARN -- MEASUREMENT             30              0        0.56            0.31
MEAS       P-VALUE -- MEASUREMENT                          30              0        0.27            0.11

------------------------------------------- CLTYPE=TYPICAL --------------------------------------------

ARITHOTL   OPPORTUNITY-TO-LEARN -- ARITHMETIC             178              0        0.82            0.19
ARITH      P-VALUE -- ARITHMETIC                          178              0        0.47            0.13
ALGOTL     OPPORTUNITY-TO-LEARN -- ALGEBRA                178              0        0.63            0.24
ALG        P-VALUE -- ALGEBRA                             178              0        0.38            0.12
GEOMOTL    OPPORTUNITY-TO-LEARN -- GEOMETRY               178              0        0.41            0.23
GEOM       P-VALUE -- GEOMETRY                            178              0        0.35            0.09
STATOTL    OPPORTUNITY-TO-LEARN -- STATISTICS             178              0        0.68            0.27
STAT       P-VALUE -- STATISTICS                          178              0        0.55            0.12
MEASOTL    OPPORTUNITY-TO-LEARN -- MEASUREMENT            178              0        0.68            0.26
MEAS       P-VALUE -- MEASUREMENT                         178              0        0.39            0.10

------------------------------------------- CLTYPE=ENRICHED -------------------------------------------

ARITHOTL   OPPORTUNITY-TO-LEARN -- ARITHMETIC              34              0        0.86            0.23
ARITH      P-VALUE -- ARITHMETIC                           34              0        0.65            0.13
ALGOTL     OPPORTUNITY-TO-LEARN -- ALGEBRA                 34              0        0.74            0.29
ALG        P-VALUE -- ALGEBRA                              34              0        0.57            0.13
GEOMOTL    OPPORTUNITY-TO-LEARN -- GEOMETRY                34              0        0.53            0.22
GEOM       P-VALUE -- GEOMETRY                             34              0        0.49            0.12
STATOTL    OPPORTUNITY-TO-LEARN -- STATISTICS              34              0        0.69            0.28
STAT       P-VALUE -- STATISTICS                           34              0        0.69            0.12
MEASOTL    OPPORTUNITY-TO-LEARN -- MEASUREMENT             34              0        0.80            0.24
MEAS       P-VALUE -- MEASUREMENT                          34              0        0.51            0.12

------------------------------------------- CLTYPE=ALGEBRA --------------------------------------------

ARITHOTL   OPPORTUNITY-TO-LEARN -- ARITHMETIC              38              0        0.86            C.21
ARITH      P-VALUE -- ARITHMETIC                           38              0        0.70            0.15
ALGOTL     OPPORTUNITY-TO-LEARN -- ALGEBRA                 38              0        0.88            0.22
ALG        P-VALUE -- ALGEBRA                              38              0        0.67            0.16
GEOMOTL    OPPORTUNITY-TO-LEARN -- GEOMETRY                38              0        0.45            0.25
GEOM       P-VALUE -- GEOMETRY                             38              0        0.51            0.14
STATOTL    OPPORTUNITY-TO-LEARN -- STATISTICS              38              0        0.74            0.28
STAT       P-VALUE -- STATISTICS                           38              0        0.73            0.13
MEASOTL    OPPORTUNITY-TO-LEARN -- MEASUREMENT             38              0        0.72            0.25
MEAS       P-VALUE -- MEASUREMENT                          38              0        0.56            0.15
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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991    2
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=ARITHOTL      OPPORTUNITY-TO-LEARN -- ARITHMETIC

                 MOMENTS                              QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS          30 100% MAX   0.983871     99%     0.983871      LOWEST    HIGHEST
MEAN        0.758602  SUM          22.7581  75% Q3    0.919355     95%        0.975    0.354839   0.935484
STD DEV     0.177923  VARIANCE   0.0316567  50% MED   0.806452     90%     0.951613    0.435484   0.951613
SKEWNESS   -0.686414  KURTOSIS   -0.525298  25% Q1    0.637097     10%     0.454839    0.451613   0.951613
USS          18.1824  CSS         0.918045   0% MIN   0.354839      5%     0.399193    0.483871   0.967742
CV           23.4541  STD MEAN   0.0324842                          1%     0.354839    0.564516   0.983871
T:MEAN=0     23.3529  PROB>|T|      0.0001  RANGE     0.629032
SGN RANK       232.5  PROB>|S|      0.0001  Q3-Q1     0.282258
NUM ¬= 0          30                        MODE      0.741935

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 0022245578              10  +-----+     0.95+                              ******+*** *   *
   8 112557                   6  *-----*         |                         *****+++
   7 444                      3  |  +  |         |                      ***+++
   6 015688                   6  +-----+     0.65+                 *****
   5 6                        1     |            |           +++++**
   4 458                      3     |            |     ++++*+* *
   3 5                        1     |        0.35++++++*
     ----+----+----+----+                            +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                               14:27 TUESDAY, AUGUST 20, 1991    3
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=ARITH          P-VALUE -- ARITHMETIC

                 MOMENTS                               QUANTILES(DEF=4)                     EXTREMES

N                 30  SUM WGTS          30 100% MAX    0.664297     99%     0.664297      LOWEST    HIGHEST
MEAN        0.324256  SUM          9.72767  75% Q3     0.346585     95%     0.647982    0.181717   0.505102
STD DEV     0.133077  VARIANCE   0.0177096  50% MED    0.275031     90%      0.58314    0.205833   0.581448
SKEWNESS     1.51588  KURTOSIS     1.25916  25% Q1     0.232273     10%     0.215332    0.214975   0.583328
USS          3.66783  CSS         0.513579   0% MIN    0.181717      5%     0.194981    0.218548   0.634632
CV           41.0409  STD MEAN   0.0242965                           1%     0.181717    0.222781   0.664297
T:MEAN=0     13.3458  PROB>|T|      0.0001  RANGE       0.48258
SGN RANK       232.5  PROB>|S|      0.0001  Q3-Q1      0.114313
NUM ¬= 0          30                        MODE       0.181717

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   6 36                       2     0        0.65+                                         *   *+++++
   5 188                      3     0            |                                   * * *++++++
   4                                |            |                               ++++++++
   3 2244457                  7  +--+--+         |                        ++++*******
   2 11223334556677888       17  *-----*         |         * * * *************
   1 8                        1     |        0.15+     *   +++++++
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991    4
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=ALGOTL         OPPORTUNITY-TO-LEARN -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS          30 100% MAX          1      99%           1      LOWEST    HIGHEST
MEAN        0.373958  SUM          11.2188  75% Q3    0.523438      95%    0.982812           0     0.6875
STD DEV     0.280289  VARIANCE   0.0785616  50% MED   0.265625      90%    0.921875     0.03125    0.78125
SKEWNESS    0.885631  KURTOSIS   0.0490324  25% Q1    0.179688      10%    0.034375     0.03125     0.9375
USS          6.47363  CSS          2.27829   0% MIN          0       5%   0.0171875      0.0625    0.96875
CV           74.9518  STD MEAN   0.0511734                           1%           0     0.09375          1
T:MEAN=0     7.30766  PROB>|T|      0.0001  RANGE            1
SGN RANK       217.5  PROB>|S|      0.0001  Q3-Q1      0.34375
NUM ¬= 0          29                        MODE          0.25

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                        1     |         1.1+                                             *  +++
   8 47                       2     |            |                                       * *++++++
   6 98                       2     |            |                                  +*+*+++
   4 4447099                  7  +-----+         |                          ++*******
   2 2255555818              10  *--+--*         |                   *********
   0 03369669                 8  +-----+      0.1+     *   ***+*+****
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991    5
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=ALG            P-VALUE -- ALGEBRA

                 MOMENTS                                QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS          30 100% MAX   0.589623     99%     0.589623      LOWEST    HIGHEST
MEAN        0.249109  SUM          7.47326  75% Q3    0.265713     95%     0.517328    0.139526   0.368076
STD DEV     0.100855  VARIANCE   0.0101718  50% MED   0.210067     90%     0.410659      0.1701   0.410412
SKEWNESS      1.9473  KURTOSIS      3.7459  25% Q1    0.191222     10%       0.1721    0.171475   0.410686
USS          2.15663  CSS         0.294981   0% MIN   0.139526      5%     0.156342    0.177724   0.458178
CV           40.4865  STD MEAN   0.0184136                          1%     0.139526    0.179685   0.589623
T:MEAN=0     13.5285  PROB>|T|      0.0001  RANGE     0.450097
SGN RANK       232.5  PROB>|S|      0.0001  Q3-Q1    0.0744914
NUM ¬= 0          30                        MODE      0.139526

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   5 9                        1     *        0.55+                                            *    +
   4 116                      3     0            |                                    * *+*++++++++
   3 7                        1     |        0.35+                              ++++*++++
   2 0000011112556778        16  *--+--*         |                    +*************
   1 477888999                9  +-----+     0.15+    *   * *+*+*******
     ----+----+----+----+                        +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1        0         +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991    6
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=GEOMOTL        OPPORTUNITY-TO-LEARN -- GEOMETRY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS          30 100% MAX          1      99%           1      LOWEST    HIGHEST
MEAN        0.265079  SUM          7.95238  75% Q3    0.428571      95%    0.829762           0   0.428571
STD DEV     0.234932  VARIANCE   0.0551933  50% MED   0.178571      90%    0.645238           0   0.452381
SKEWNESS     1.28006  KURTOSIS      1.9732  25% Q1   0.0952381      10%           0           0   0.666667
USS          3.70862  CSS           1.6006   0% MIN          0       5%           0           0   0.690476
CV           88.6272  STD MEAN   0.0428926                           1%           0   0.0714286          1
T:MEAN=0     6.18007  PROB>|T|      0.0001  RANGE            1
SGN RANK       175.5  PROB>|S|      0.0001  Q3-Q1     0.333333
NUM ¬= 0          26                        MODE     0.0952381

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                        1     0         1.1+                                             *
   8                                             |                                                +++
   6 79                       2     |            |                                       *+*++++++
   4 33335                    5  +-----+         |                               +****+*++
   2 613666                   6  |  +  |         |                       +++******
   0 0000700000244479        16  *-----*      0.1+     *********+***********
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991    7
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=GEOM           P-VALUE -- GEOMETRY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                  30  SUM WGTS          30 100% MAX   0.487693     99%     0.487693      LOWEST    HIGHEST
MEAN         0.261764  SUM          7.85293  75% Q3    0.268564     95%      0.47201    0.169583   0.380211
STD DEV     0.0872777  VARIANCE   0.0076174  50% MED   0.230259     90%     0.442272    0.181621   0.407155
SKEWNESS      1.48186  KURTOSIS     1.19799  25% Q1    0.203223     10%     0.187851    0.187299   0.446174
USS           2.27652  CSS         0.220904   0% MIN   0.169583      5%     0.176204     0.19282   0.459178
CV            33.3421  STD MEAN   0.0159347                          1%     0.169583    0.196976   0.487693
T:MEAN=0      16.4274  PROB>|T|      0.0001  RANGE      0.31811
SGN RANK        232.5  PROB>|S|      0.0001  Q3-Q1    0.0653415
NUM ¬= 0           30                        MODE      0.169583

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   4 569                      3     0       0.475+                                         *   * ++++
   4 1                        1     0            |                                     * * ++++++
   3 8                        1     0            |                                   *+++++
   3 2                        1     |       0.325+                              ++++*+
   2 55666668                 8  +--+--+         |                        ++********
   2 000001112224            12  *-----*         |                 *********
   1 7899                     4     |       0.175+     *   * * *+**+
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991    8
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=STATOTL        OPPORTUNITY-TO-LEARN -- STATISTICS


                 MOMENTS                                QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS          30  100% MAX           1     99%            1      LOWEST    HIGHEST
MEAN        0.494444  SUM          14.8333   75% Q3    0.736111     95%     0.969444           0   0.833333
STD DEV     0.304762  VARIANCE   0.0928799   50% MED   0.527778     90%     0.933333    0.111111   0.833333
SKEWNESS  -0.0508392  KURTOSIS    -1.39031   25% Q1    0.166667     10%     0.111111    0.111111   0.944444
USS          10.0278  CSS          2.69352    0% MIN           0      5%    0.0611111    0.111111   0.944444
CV           61.6373  STD MEAN   0.0556417                          1%            0    0.166667          1
T:MEAN=0     8.88622  PROB>|T|      0.0001  RANGE               1
SGN RANK       217.5  PROB>|S|      0.0001  Q3-Q1     0.569444
NUM ¬= 0          29                        MODE      0.166667

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                        1     |         1.1+                                          +++*+++
   8 3344                     4     |            |                                   ***+***
   6 17722288                 8  +-----+         |                           ********+
   4 400066                   6  *--+--*         |                      ******++
   2 2                        1  |     |         |                +++++*
   0 0111777777              10  +-----+      0.1+     *   *****+******
     ----+----+----+----+                        +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991    9
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=STAT           P-VALUE -- STATISTICS

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS          30 100% MAX    0.707401     99%     0.707401      LOWEST    HIGHEST
MEAN        0.396034  SUM           11.881  75% Q3     0.484257     95%     0.675827    0.174071   0.529096
STD DEV     0.131672  VARIANCE   0.0173376  50% MED     0.35478     90%     0.626475    0.198146    0.58981
SKEWNESS    0.690285  KURTOSIS   0.0187268  25% Q1     0.299765     10%     0.267126    0.266663   0.630549
USS          5.20808  CSS         0.502789   0% MIN    0.174071      5%     0.187312    0.271294   0.649995
CV           33.2477  STD MEAN   0.0240399                           1%     0.174071    0.281477   0.707401
T:MEAN=0      16.474  PROB>|T|      0.0001  RANGE     0.533329
SGN RANK       232.5  PROB>|S|      0.0001  Q3-Q1     0.184491
NUM ¬= 0          30                        MODE      0.174071

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 1                        1     |        0.75+                                             *   ++
   6 35                       2     |            |                                       * *+++++++
   5 139                      3     |            |                                 +**+*+++
   4 01114589                 8  +-----+     0.45+                          +*******
   3 012344555                9  *--+--*         |                  *********
   2 077889                   6  +-----+         |           *+*+***
   1 7                        1     |        0.15+   ++*+++*+
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   10
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=MEASOTL        OPPORTUNITY-TO-LEARN -- MEASUREMENT

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS            30 100% MAX            1     99%            1      LOWEST    HIGHEST
MEAN        0.561538  SUM        16.8462  75% Q3     0.778846     95%            1           0   0.923077
STD DEV     0.308619  VARIANCE   0.0952459  50% MED    0.653846     90%     0.961538   0.0769231   0.961538
SKEWNESS   -0.357089  KURTOSIS    -1.07691  25% Q1     0.278846     10%     0.115385    0.115385   0.961538
USS          12.2219  CSS         2.76213   0% MIN            0      5%    0.0423077    0.115385          1
CV           54.9596  STD MEAN   0.0563459                          1%            0    0.115385          1
T:MEAN=0     9.96591  PROB>|T|       0.0001  RANGE            1
SGN RANK       217.5  PROB>|S|       0.0001  Q3-Q1          0.5
NUM ¬= 0          29                        MODE      0.730769

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00                       2     |         1.1+                                        +*****
   8 15266                    5     |            |                                 ***+***
   6 559933337                9  *-----*         |                         ********
   4 66648                    5  |  +  |         |                    *****++
   2 18                       2  +-----+         |              ++++**
   0 0822259                  7     |         0.1+     * ++*+*******
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   11
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=1

UNIVARIATE

VARIABLE=MEAS          P-VALUE -- MEASUREMENT

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 30  SUM WGTS          30 100% MAX   0.544732     99%     0.544732      LOWEST    HIGHEST
MEAN        0.273126  SUM          8.19377  75% Q3    0.329183     95%     0.531711    0.156408   0.391935
STD DEV     0.106015  VARIANCE   0.0112393  50% MED   0.235058     90%     0.500342    0.176279   0.416936
SKEWNESS      1.4485  KURTOSIS     1.24411  25% Q1    0.201187     10%      0.18295    0.182936   0.509609
USS          2.56387  CSS         0.325939   0% MIN   0.156408      5%     0.167337    0.183073   0.521057
CV           38.8156  STD MEAN   0.0193557                          1%     0.156408    0.192306   0.544732
T:MEAN=0     14.1109  PROB>|T|      0.0001  RANGE     0.388324
SGN RANK       232.5  PROB>|S|      0.0001  Q3-Q1     0.127996
NUM ¬= 0          30                        MODE      0.156408

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   5 124                      3     0       0.525+                                       * *   * ++++
   4                                |            |                                          +++++
   4 2                        1     |            |                                     *++++
   3 9                        1     |            |                                 ++*+
   3 334                      3  +-----+         |                            ++++***
   2 555579                   6  |  +  |         |                       +++++****
   2 0011122334              10  *-----*         |                  **********
   1 688899                   6     |       0.175+     *   * * *+***+
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                               14:27 TUESDAY, AUGUST 20, 1991    12
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=ARITHOTL       OPPORTUNITY-TO-LEARN -- ARITHMETIC

                 MOMENTS                                QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS          178 100% MAX          1     99%     0.987258      LOWEST    HIGHEST
MEAN        0.817688  SUM           145.548  75% Q3    0.919355     95%     0.983871            0   0.983871
STD DEV     0.192259  VARIANCE    0.0369636  50% MED   0.854839     90%     0.967742            0   0.983871
SKEWNESS    -3.06066  KURTOSIS      10.5409  25% Q1    0.802419     10%      0.66129            0   0.983871
USS          125.556  CSS           6.54256   0% MIN          0      5%      0.56371            0   0.983871
CV           23.5126  STD MEAN    0.0144104                          1%            0           0          1
T:MEAN=0     56.7427  PROB>|T|       0.0001 RANGE             1
SGN RANK        7353  PROB>|S|       0.0001 Q3-Q1      0.116935
NUM ¬= 0         171                        MODE       0.854839

STEM LEAF                                        #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                                           1     |       1.025+                                    +++            *
   9 5555555777777777788888888888               28     |            |                                +++****************
   9 00000000000222222222222222444444444        35  +-----+    0.925+                              *******
   8 55555555555555577777777779999999999999     38  *-----*         |                       *******
   8 11111111111111122222222444444444           32  +--+--+    0.825+                  ****** ++
   7 66677777799999                             14     |            |                ***   +++
   7 3344                                        4     |       0.725+               *   +++
   6 6666888899                                 10     |            |            ***  ++
   6 003333                                      6     |       0.625+          **  +++
   5 568                                         3     0            |        *** ++
   5                                                   0       0.525+        *+++
   4                                                                |      +++
   4                                                           0.425+    ++
   3                                                                | +++
   3                                                           0.325++
   2                                                                |
   2                                                           0.225+
   1                                                                |
   1                                                           0.125+
   0                                                                |
   0 0000000                                     7     *       0.025+********
     ----+----+----+----+----+----+----+---                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                          -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                             14:27 TUESDAY, AUGUST 20, 1991   13
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=ARITH          P-VALUE -- ARITHMETIC

                 MOMENTS                              QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS         178 100% MAX   0.764433     99%     0.748783      LOWEST    HIGHEST
MEAN        0.474151  SUM          84.3989  75% Q3    0.563747     95%      0.69385       0.221   0.708655
STD DEV     0.126325  VARIANCE    0.015958  50% MED   0.470591     90%     0.649028    0.234958   0.721787
SKEWNESS    0.166594  KURTOSIS   -0.826777  25% Q1    0.370579     10%     0.320992    0.237833   0.732781
USS          42.8424  CSS          2.82457   0% MIN      0.221      5%     0.277088    0.243276   0.744623
CV           26.6424  STD MEAN  0.00946846                          1%     0.232027    0.245052   0.764433
T:MEAN=0     50.0769  PROB>|T|      0.0001 RANGE      0.543433
SGN RANK      7965.5  PROB>|S|      0.0001 Q3-Q1      0.193168
NUM ¬= 0         178                       MODE          0.221

STEM LEAF                           #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 6                              1     |       0.775+                                               +++*
   7 0111234                        7     |            |                                           ***+* *
   6 5567777799                    10     |            |                                      *****
   6 001111112223333444            18     |            |                                  *****
   5 555555566678888999            18  +-----+         |                               ***+
   5 00001111112222233334444444    26  |     |         |                           ****+
   4 555566667788899999            18  *--+--*         |                        ***+
   4 0000011111122333333444        22  |     |         |                    +****
   3 55556666677778888889999999    26  +-----+         |                ******
   3 000112223333334444444         21     |            |          *******
   2 5667899                        7     |            |      ****++
   2 2344                           4     |       0.225+** *+**+
     ----+----+----+----+----+-                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                             -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   14
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=ALGOTL         OPPORTUNITY-TO-LEARN -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS         178 100% MAX          1     99%     0.975312      LOWEST    HIGHEST
MEAN        0.632374  SUM          112.563  75% Q3      0.8125     95%       0.9375           0    0.96875
STD DEV     0.241286  VARIANCE   0.0582191  50% MED     0.6875     90%      0.90625           0    0.96875
SKEWNESS   -0.868604  KURTOSIS    0.282139  25% Q1         0.5     10%         0.25           0    0.96875
USS          81.4863  CSS          10.3048   0% MIN          0      5%     0.121875           0    0.96875
CV           38.1557  STD MEAN   0.0180852                          1%            0           0          1
T:MEAN=0     34.9664  PROB>|T|      0.0001  RANGE            1
SGN RANK        7353  PROB>|S|      0.0001  Q3-Q1       0.3125
NUM ¬= 0         171                        MODE       0.71875

STEM LEAF                       #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                          1     |       1.025+                                         ++       *
   9 77777                      5     |            |                                       ++   ******
   9 11111114444444444         17     |       0.925+                                    ********
   8 777777                     6     |            |                                   **
   8 1111111111144444444444    22  +-----+    0.825+                               *****
   7 555555888888888888        18  |     |         |                            ****
   7 22222222222222            14  |     |    0.725+                          ****+
   6 66666999999999            14  *-----*         |                        ****+
   6 222222222                  9  |  +  |    0.625+                       **+
   5 666666666669999999        18  |     |         |                    ****
   5 000000033333333           15  +-----+    0.525+                 *****+
   4 777777                     6     |            |                **++
   4 1444                       4     |       0.425+               ***+
   3 77                         2     |            |              +*
   3 1444444                    7     |       0.325+            +****
   2 555588                     6     |            |          +****
   2 2222                       4     |       0.225+        +****
   1                                  |            |      ++
   1 22                         2     |       0.125+   +++  **
   0 6                          1     |            | ++     *
   0 0000000                    7     0       0.025+********
     ----+----+----+----+--                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                         -2        -1         0        +1        +2
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CLTYPE=2

UNIVARIATE

VARIABLE=ALG            P-VALUE -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS         178 100% MAX   0.693634     99%     0.670743      LOWEST    HIGHEST
MEAN        0.378579  SUM           67.387  75% Q3    0.461351     95%     0.613465    0.168841   0.618075
STD DEV     0.118812  VARIANCE   0.0141163  50% MED   0.361469     90%     0.545498    0.180613   0.636439
SKEWNESS    0.467142  KURTOSIS   -0.598956  25% Q1    0.283158     10%     0.231074    0.194222   0.641178
USS          28.0099  CSS          2.49858   0% MIN   0.168841      5%     0.215942    0.200503   0.664659
CV           31.3837  STD MEAN  0.00890534                          1%     0.178141    0.206841   0.693634
T:MEAN=0     42.5114  PROB>|T|      0.0001  RANGE     0.524793
SGN RANK      7965.5  PROB>|S|      0.0001  Q3-Q1     0.178193
NUM ¬= 0         178                        MODE      0.168841

STEM LEAF                               #  BOXPLOT                        NORMAL PROBABILITY PLOT
   6 69                                 2     |       0.675+                                                +**
   6 01222244                           8     |            |                                          ****+*
   5 55677788                           8     |            |                                       ***++
   5 00000111122223344                 17     |            |                                  *****+
   4 555666666677889999                18  +-----+         |                               ****+
   4 00011111111223334444              20  |     |    0.425+                           +***+
   3 55566666666677777777778899        26  *--+--*         |                       +*****
   3 0000011111111222233444444         25  |     |         |                   +*****
   2 555556667777788888888999999999    30  +-----+         |               ******
   2 011112222233333333444             21     |            |     ***********
   1 789                                3     |       0.175+** *  ++++
     ----+----+----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                 -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   16
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=GEOMOTL        OPPORTUNITY-TO-LEARN -- GEOMETRY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS         178 100% MAX     0.952381     99%      0.839524     LOWEST    HIGHEST
MEAN        0.414393  SUM          73.7619  75% Q3      0.595238     95%      0.785714          0   0.785714
STD DEV     0.226379  VARIANCE   0.0512474  50% MED     0.404762     90%      0.716667          0   0.809524
SKEWNESS  -0.0879147  KURTOSIS   -0.765539  25% Q1      0.261905     10%     0.0714285          0   0.809524
USS          39.6372  CSS          9.07079   0% MIN            0      5%             0          0   0.809524
CV           54.6291  STD MEAN   0.0169678                            1%             0          0   0.952381
T:MEAN=0     24.4223  PROB>|T|      0.0001  RANGE     0.952381
SGN RANK      7182.5  PROB>|S|      0.0001  Q3-Q1     0.333333
NUM ¬= 0         169                        MODE           0.5

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 5                        1     |       0.975+                                                 +*
   9                                |            |                                             ++
   8                                |            |                                               ++
   8 111                      3     |            |                                           ++******
   7 66666999999             11     |            |                                       ******
   7 11144                    5     |            |                                     ***
   6 7777777799              10     |            |                                   ***
   6 0000000022222444444     19     |            |                                ***+
   5 5555777                  7  +-----+         |                               **+
   5 000000000002222         15  |     |         |                            ***
   4 555555558                9  |     |         |                          **+
   4 00000000003333333       17  *--+--*         |                        ***
   3 666688888888            12  |     |         |                      ***
   3 111111111333333333      18  |     |         |                   ****
   2 666999999                9  +-----+         |                  **
   2 1444444                  7     |            |                +**
   1 777999                   6     |            |              +**
   1 00000224444             11     |            |            ++**
   0 555577                   6     |            |         +++***
   0 000000000222            12     |       0.025+************
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                                  14:27 TUESDAY, AUGUST 20, 1991   17
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=GEOM          P-VALUE -- GEOMETRY

                 MOMENTS                                           QUANTILES(DEF=4)                            EXTREMES

N                 178  SUM WGTS          178 100% MAX   0.670634       99%      0.619824      LOWEST    HIGHEST
MEAN         0.348807  SUM           62.0877  75% Q3    0.419427       95%      0.505668    0.160402   0.528753
STD DEV     0.0931192  VARIANCE   0.00867119  50% MED   0.347058       90%      0.462738    0.185993   0.536855
SKEWNESS     0.400009  KURTOSIS   -.00010491  25% Q1    0.277424       10%      0.227256     0.18802   0.575731
USS           23.1915  CSS            1.5348   0% MIN   0.160402        5%      0.202622    0.188888   0.606318
CV            26.6965  STD MEAN   0.00697958                            1%      0.180619    0.189481   0.670634
T:MEAN=0      49.9754  PROB>|T|       0.0001 RANGE      0.510232
SGN RANK       7965.5  PROB>|S|       0.0001 Q3-Q1      0.142003
NUM ¬= 0          178                        MODE       0.160402

STEM LEAF                                   #  BOXPLOT                         NORMAL PROBABILITY PLOT
   6 7                                      1     0         0.675+                                                  *
   6 1                                      1     |              |                                                *
   5 8                                      1     |              |                                              *+++
   5 000111234                              9     |              |                                        *****+
   4 556666688999                          12     |              |                                  ******
   4 000011111222222233333333334444444     33  +-----+      0.425+                            *******
   3 555555556666666667777888888889999     33  |     |           |                       *****
   3 0000111111111122222333344444          28  *--+--*           |                   +*****
   2 5555556666777777777778888999999999999 37  +-----+           |              *******
   2 00011112222234444                     17     |              |        *******
   1 699999                                 6     |         0.175+** *+****++
     ----+----+----+----+----+----+----+--                        +----+----+----+----+----+----+----+----+----+----+
 MULTIPLY STEM.LEAF BY 10**-01                                         -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   18
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=STATOTL        OPPORTUNITY-TO-LEARN -- STATISTICS


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS           178  100% MAX            1      99%            1      LOWEST    HIGHEST
MEAN        0.675406  SUM          120.222   75% Q3    0.888889     95%     0.944444           0          1
STD DEV     0.268865  VARIANCE   0.0722884   50% MED   0.777778     90%     0.944444           0          1
SKEWNESS   -0.987981  KURTOSIS   0.0280385   25% Q1         0.5     10%     0.222222           0          1
USS          93.9938  CSS           12.795    0% MIN          0      5%     0.108333           0          1
CV           39.8079  STD MEAN   0.0201523                           1%            0           0          1
T:MEAN=0     33.5151  PROB>|T|      0.0001  RANGE             1
SGN RANK        7353  PROB>|S|      0.0001  Q3-Q1      0.388889
NUM ¬= 0         171                        MODE       0.888889

STEM LEAF                            #  BOXPLOT                         NORMAL PROBABILITY PLOT
  10 000000                          6     |       1.025+                                      +     *******
   9                                       |            |                                    ++
   9 4444444444444444444444444      25     |       0.925+                                  **********
   8 999999999999999999999999999    27  +-----+         |                              *****
   8 333333333333333333             18  |     |    0.825+                           ***++
   7 88888888888888                 14  *-----*         |                         ***++
   7 2222222222222                  13  |     |    0.725+                       ***++
   6 777777777777777                15  |  +  |         |                     *** +
   6 1111111111                     10  |     |    0.625+                   *** ++
   5 66666                           5  |     |         |                  ** ++
   5 000000                          6  +-----+    0.525+                 **++
   4                                       |            |                 ++
   4 4444444                         7     |       0.425+               +**
   3 9                               1     |            |             ++ *
   3 33333333                        8     |       0.325+            + ***
   2 88888                           5     |            |          ++***
   2 22222                           5     |       0.225+        ++ **
   1 777                             3     |            |      ++ **
   1 11                              2     |       0.125+    ++  **
   0 6                               1     |            |  ++    *
   0 0000000                         7     |       0.025+********
     ----+----+----+----+----+--                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                              -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   19
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=STAT           P-VALUE -- STATISTICS


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS         178 100% MAX   0.833331     99%     0.800413      LOWEST    HIGHEST
MEAN         0.54739  SUM          97.4354  75% Q3    0.639595     95%     0.729862    0.229625   0.757931
STD DEV     0.120087  VARIANCE   0.0144209  50% MED   0.556079     90%     0.702179    0.296293   0.777778
SKEWNESS   -0.125113  KURTOSIS   -0.641205  25% Q1    0.452967     10%     0.388864    0.297613   0.789681
USS          55.8876  CSS           2.5525   0% MIN   0.229625      5%     0.347222    0.306742   0.791662
CV           21.9382  STD MEAN  0.00900091                          1%     0.282292    0.330555   0.833331
T:MEAN=0     60.8149  PROB>|T|      0.0001  RANGE     0.603706
SGN RANK      7965.5  PROB>|S|      0.0001  Q3-Q1     0.186628
NUM ¬= 0         178                        MODE      0.481475

STEM LEAF                           #  BOXPLOT                        NORMAL PROBABILITY PLOT
   8 3                              1     |       0.825+                                               +++*
   7 66899                          5     |            |                                          ++**+* *
   7 00000111233334                14     |            |                                      ******
   6 556666677777778888999         21     |            |                                *******
   6 00001111112222222333334444    26  +-----+         |                            *****+
   5 55566666677777778888899999    26  *-----*         |                         ****+
   5 0000111222222223333444444     25  |  +  |    0.525+                     *****
   4 555566677777888899            18  +-----+         |                 +****
   4 000111111122222333444         21     |            |             +*****
   3 55556788899999                14     |            |         +*****
   3 001344                         6     |            |     *****
   2                                      |            | *+*+
   2 3                              1     |       0.225+*
     ----+----+----+----+----+-                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                             -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   20
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=MEASOTL        OPPORTUNITY-TO-LEARN -- MEASUREMENT


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                178  SUM WGTS         178 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.682152  SUM          121.423  75% Q3    0.884615     95%            1           0          1
STD DEV     0.263006  VARIANCE   0.0691722  50% MED   0.730769     90%     0.961538           0          1
SKEWNESS   -0.960952  KURTOSIS    0.238433  25% Q1    0.538462     10%          0.3           0          1
USS          95.0725  CSS          12.2435   0% MIN          0      5%     0.146154           0          1
CV           38.5553  STD MEAN   0.0197131                          1%            0           0          1
T:MEAN=0     34.6039  PROB>|T|      0.0001  RANGE            1
SGN RANK      7267.5  PROB>|S|      0.0001  Q3-Q1     0.346154
NUM ¬= 0         170                        MODE      0.923077

STEM LEAF                        #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00000000000                11     |       1.025+                                      +  **********
   9 66666666666666             14     |            |                                   *****
   9 22222222222222222          17     |       0.925+                               *****
   8 55555558888888888888888    23  +-----+         |                             ****+
   8 11111111                    8  |     |    0.825+                          ****++
   7 7777777777777              13  |     |         |                        ****++
   7 3333333333333              13  *-----*    0.725+                        **++
   6 5555599999999999           16  |  +  |         |                     *****+
   6 2222222                     7  |     |    0.625+                    **++
   5 88888888                    8  |     |         |                   **+
   5 000004444444               12  +-----+    0.525+                 ***
   4 666                         3     |            |                ***+
   4 2222                        4     |       0.425+               **
   3 5555588888                 10     |            |             +**
   3 11                          2     |       0.325+           +***
   2                                   |            |         ++
   2 3333                        4     |       0.225+       ++  **
   1 55999                       5     |            |     ++ ***
   1                                   |       0.125+   ++
   0                                   |            | ++
   0 00000000                    8     0       0.025+*********
     ----+----+----+----+---                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                          -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                                14:27 TUESDAY, AUGUST 20, 1991   21
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=2

UNIVARIATE

VARIABLE=MEAS          P-VALUE -- MEASUREMENT

                 MOMENTS                               QUANTILES(DEF=4)                      EXTREMES

N                 178  SUM WGTS          178 100% MAX    0.67714      99%    0.625986     LOWEST    HIGHEST
MEAN         0.386293  SUM           68.7601  75% Q3     0.45126      95%     0.55381   0.164101   0.571423
STD DEV     0.0975853  VARIANCE   0.00952289  50% MED    0.391336     90%    0.517351   0.191753   0.583331
SKEWNESS     0.170569  KURTOSIS    -0.338099  25% Q1     0.305418     10%    0.259888   0.198854   0.607062
USS           28.2471  CSS           1.68555   0% MIN    0.164101      5%    0.225494   0.207614   0.612389
CV             25.262  STD MEAN   0.00731433                           1%    0.185946    0.21428    0.67714
T:MEAN=0      52.8132  PROB>|T|       0.0001 RANGE       0.513039
SGN RANK       7965.5  PROB>|S|       0.0001 Q3-Q1       0.145841
NUM ¬= 0          178                        MODE        0.412702

STEM LEAF                                       #  BOXPLOT                        NORMAL PROBABILITY PLOT
   6 8                                          1     0      0.675+                                                   *
   6 11                                         2     |           |                                                *+*+
   5 555566678                                  9     |           |                                          *****+
   5 00000012222244                            14     |           |                                      ****+
   4 55555556666667778888899                   23  +-----+        |                                 *****
   4 000000000011111111122222222233333444444   39  |     |   0.425+                           ******
   3 5555666666677777777888888999              28  *--+--*        |                      ******
   3 00000000011122222333444444                26  +-----+        |                  +****
   2 55566777777888888999999                   23     |           |            ********
   2 01122333444                               11     |           |      *******
   1 69                                         2     |      0.175+**+*++
     ----+----+----+----+----+----+----+----                       +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                          -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=ARITHOTL       OPPORTUNITY-TO-LEARN -- ARITHMETIC


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.863378  SUM          29.3548  75% Q3    0.955645     95%            1           0   0.967742
STD DEV      0.22543  VARIANCE   0.0508188  50% MED   0.927419     90%     0.983871           0   0.983871
SKEWNESS    -3.56654  KURTOSIS     12.3778  25% Q1    0.866935     10%     0.814516    0.806452   0.983871
USS          27.0213  CSS          1.67702   0% MIN          0      5%            0    0.822581          1
CV           26.1103  STD MEAN    0.038661                          1%            0    0.822581          1
T:MEAN=0      22.332  PROB>|T|      0.0001  RANGE            1
SGN RANK         264  PROB>|S|      0.0001  Q3-Q1    0.0887097
NUM ¬= 0          32                        MODE      0.951613

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00                       2     |        1.05+                                ++++      *****
   9 0002444455555777788     19  *-----*         |                      ******************
   8 12245577799             11  +--+--+         |           * **********++++
   7                                             |                  +++++
   6                                             |              ++++
   5                                         0.55+         +++++
   4                                             |     ++++
   3                                             | ++++
   2                                             |+
   1                                             |
   0 00                       2     *        0.05+    *****
     ----+----+----+----+                             +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   23
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=ARITH          P-VALUE -- ARITHMETIC


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX   0.817787     99%     0.817787      LOWEST    HIGHEST
MEAN        0.648336  SUM          22.0434  75% Q3    0.741864     95%     0.813051    0.251874   0.786553
STD DEV     0.128207  VARIANCE   0.0164371  50% MED   0.673965     90%     0.795917    0.341874   0.795065
SKEWNESS    -1.17137  KURTOSIS     1.87354  25% Q1    0.581874     10%     0.509508    0.485582   0.796769
USS           14.834  CSS         0.542424   0% MIN   0.251874      5%     0.319374    0.533434   0.811472
CV           19.7748  STD MEAN   0.0219874                          1%     0.251874     0.53559   0.817787
T:MEAN=0     29.4868  PROB>|T|      0.0001  RANGE     0.565914
SGN RANK       297.5  PROB>|S|      0.0001  Q3-Q1     0.159989
NUM ¬= 0          34                        MODE      0.251874

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   8 0012                     4     |        0.85+                                     +++++*++ *
   7 2223345669              10  +-----+         |                            ########## *
   6 012357889                9  *--+--*         |                      ######++
   5 34458899                 8  +-----+     0.55+             #########
   4 9                        1     |            |      +++++*++
   3 4                        1     0            |++++++  *
   2 5                        1     0        0.25+    *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   24
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=ALGOTL         OPPORTUNITY-TO-LEARN -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                   34  SUM WGTS            34 100% MAX          1     99%             1       LOWEST    HIGHEST
MEAN          0.743566  SUM            25.2813  75% Q3     0.96875     95%             1            0    0.96875
STD DEV       0.293734  VARIANCE     0.0862796  50% MED    0.84375     90%       0.96875            0    0.96875
SKEWNESS      -1.59091  KURTOSIS       1.65312  25% Q1    0.695313     10%      0.171875            0    0.96875
USS            21.6455  CSS            2.84723   0% MIN          0      5%             0      0.34375          1
CV             39.5034  STD MEAN     0.0503749                          1%             0        0.375          1
T:MEAN=0       14.7606  PROB>|T|        0.0001  RANGE            1
SGN RANK           248  PROB>|S|        0.0001  Q3-Q1     0.273438
NUM ¬= 0            31                          MODE       0.96875

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00                       2     |        1.05+                                  ++++    *****
   9 1111447777777           13  +-----+         |                           *************
   8 114444                   6  *-----*         |                      *****++++
   7 22258                    5  |  +  |         |                  ***** +++
   6 3                        1  +-----+         |                 *   +++
   5 9                        1     |        0.55+                *++++
   4                                |            |              +++
   3 488                      3     |            |          +++***
   2                                             |       +++
   1                                             |    +++
   0 000                      3     0        0.05+++++********
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   25
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=ALG            P-VALUE -- ALGEBRA


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX   0.760932      99%    0.760932      LOWEST    HIGHEST
MEAN        0.570478  SUM          19.3963  75% Q3    0.658219      95%    0.754089    0.207747   0.700562
STD DEV     0.125692  VARIANCE   0.0157986  50% MED   0.597499      90%    0.710819    0.255206   0.704011
SKEWNESS    -1.06633  KURTOSIS     1.52194  25% Q1    0.500624      10%    0.415229    0.376338   0.717627
USS          11.5865  CSS         0.521353   0% MIN   0.207747       5%    0.243341     0.45412   0.751807
CV           22.0328  STD MEAN   0.0215561                           1%    0.207747    0.460938   0.760932
T:MEAN=0     26.4649  PROB>|T|      0.0001  RANGE     0.553185
SGN RANK       297.5  PROB>|S|      0.0001  Q3-Q1     0.157596
NUM ¬= 0          34                        MODE      0.207747

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 00256                    5     |        0.75+                                    **+*+++*+  *
   6 122234456668            12  +-----+         |                         ***********
   5 0003335568              10  *--+--*         |                  *********++
   4 5689                     4     |            |            +*******++
   3 8                        1     |            |    ++++++++*
   2 16                       2     0        0.25+++++*   *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                        -2        -1         0        +1        +2
```

```
CLTYPE=3

UNIVARIATE

VARIABLE=GEOMOTL        OPPORTUNITY-TO-LEARN -- GEOMETRY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX   0.952381     99%     0.952381      LOWEST    HIGHEST
MEAN        0.533613  SUM          18.1429  75% Q3    0.672619     95%     0.898809           0   0.738095
STD DEV     0.221431  VARIANCE   0.0490317  50% MED   0.559524     90%     0.773809           0   0.761905
SKEWNESS   -0.736502  KURTOSIS     0.57109  25% Q1    0.422619     10%     0.202381    0.190476   0.785714
USS          11.2993  CSS          1.61805   0% MIN          0      5%            0    0.214286   0.880952
CV           41.4965  STD MEAN   0.0379751                          1%            0    0.261905   0.952381
T:MEAN=0     14.0517  PROB>|T|      0.0001 RANGE      0.952381
SGN RANK         264  PROB>|S|      0.0001 Q3-Q1          0.25
NUM ¬= 0          32                       MODE       0.523809

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 5                        1     |        0.95+                                          ++++*
   8 8                        1     |            |                                      ++++*
   7 1469                     4     |            |                                 ++*** *
   6 044447799                9  +-----+     0.65+                            *******
   5 022222577                9  *--+--*         |                    ********
   4 038                      3  +-----+         |                 ***++++
   3 8                        1     |        0.35+               +*++
   2 166                      3     |            |          +++***
   1 9                        1     |            |      ++++ *
   0 00                       2     0        0.05+ +++*****
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                               14:27 TUESDAY, AUGUST 20, 1991   27
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=GEOM           P-VALUE -- GEOMETRY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX   0.676977     99%     0.676977      LOWEST    HIGHEST
MEAN        0.489363  SUM          16.6383  75% Q3    0.595678     95%     0.668955    0.222802   0.645062
STD DEV     0.118099  VARIANCE   0.0139474  50% MED   0.487937     90%     0.656565    0.311929   0.653611
SKEWNESS  -0.0947872  KURTOSIS   -0.777617  25% Q1    0.387385     10%     0.340222      0.3354   0.659518
USS          8.60246  CSS         0.460265   0% MIN   0.222802      5%     0.289647    0.345044   0.666281
CV           24.1332  STD MEAN   0.0202538                          1%     0.222802    0.365547   0.676977
T:MEAN=0     24.1615  PROB>|T|      0.0001  RANGE     0.454176
SGN RANK       297.5  PROB>|S|      0.0001  Q3-Q1     0.208293
NUM ¬= 0          34                        MODE      0.222802

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   6 55678                    5     |       0.675+                                     * *++*   *
   6 0033                     4     |            |                                  ***++
   5 5559                     4  +-----+         |                               ***+
   5 11                       2  |     |    0.525+                          +****
   4 567999                   6  *--+--*         |                      *****
   4 0034                     4  |     |         |                  ++***
   3 578899                   6  +-----+    0.375+              ******
   3 14                       2     |            |        *++*+*
   2                                |            |     ++++
   2 2                        1     |       0.225+ +++*
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                               14:27 TUESDAY, AUGUST 20, 1991  28
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=STATOTL        OPPORTUNITY-TO-LEARN -- STATISTICS

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.686275  SUM          23.3333  75% Q3    0.888889     95%            1           0   0.944444
STD DEV     0.282579  VARIANCE   0.0798508  50% MED   0.833333     90%     0.944444           0   0.944444
SKEWNESS    -1.05391  KURTOSIS    0.267622  25% Q1    0.527778     10%     0.222222    0.166667   0.944444
USS          18.6481  CSS          2.63508   0% MIN          0      5%            0    0.277778          1
CV           41.1758  STD MEAN   0.0484619                          1%            0    0.333333          1
T:MEAN=0     14.1611  PROB>|T|      0.0001 RANGE             1
SGN RANK         264  PROB>|S|      0.0001 Q3-Q1      0.361111
NUM ¬= 0          32                       MODE       0.833333

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00                       2     |        1.05+                                     +++  *****
   9 44444                    5     |            |                                 +*******
   8 333333399999            12  *-----*         |                        **********
   7                             |     |         |                          ++++
   6 777                      3  |  +  |         |                      **++
   5 6666                     4  +-----+     0.55+                  ****
   4 444                      3     |            |               ***+
   3 3                        1     |            |            ++*
   2 8                        1     |            |        ++++ *
   1 7                        1     |            |     +++   *
   0 00                       2     |        0.05+ +++*****
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   29
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=STAT           P-VALUE -- STATISTICS

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX   0.826715      99%    0.826715      LOWEST    HIGHEST
MEAN        0.686856  SUM          23.3531  75% Q3    0.775381      95%    0.825722    0.275462   0.811612
STD DEV     0.123314  VARIANCE   0.0152064  50% MED   0.720364      90%    0.819837    0.394177   0.817455
SKEWNESS    -1.45546  KURTOSIS      2.8685  25% Q1    0.607935      10%    0.558031    0.552574   0.822219
USS           16.542  CSS         0.501812   0% MIN   0.275462       5%    0.364498    0.563488   0.825391
CV           17.9534  STD MEAN   0.0211482                           1%    0.275462    0.578038   0.826715
T:MEAN=0     32.4782  PROB>|T|      0.0001  RANGE     0.551253
SGN RANK       297.5  PROB>|S|      0.0001  Q3-Q1     0.167446
NUM ¬= 0          34                        MODE      0.275462

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   8 0112233                  7     |        0.85+                                   ***+*++*   *
   7 0122333566778           13  *-----*         |                        ***********
   6 00144566                 8  +--+--+         |                  ******+++
   5 5689                     4     |        0.55+          +*+*****
   4                                |            |  ++++++++
   3 9                        1     |            |++      *
   2 8                        1     0        0.25+    *
     ----+----+----+----+                            +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                         -2        -1         0        +1        +2
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SIMS POPULATION A: BASIC STATISTICS                                                               14:27 TUESDAY, AUGUST 20, 1991   30
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=MEASOTL        OPPORTUNITY-TO-LEARN -- MEASUREMENT

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                  34 SUM WGTS           34 100% MAX           1     99%            1      LOWEST    HIGHEST
MEAN         0.799774 SUM           27.1923 75% Q3      0.932692     95%            1           0   0.961538
STD DEV      0.237618 VARIANCE    0.0564622 50% MED     0.884615     90%     0.980769           0   0.961538
SKEWNESS     -2.42368 KURTOSIS      6.28574 25% Q1      0.730769     10%     0.538462         0.5          1
USS           23.6109 CSS           1.86325  0% MIN            0      5%            0    0.576923          1
CV            29.7106 STD MEAN    0.0407511                           1%            0    0.615385          1
T:MEAN=0      19.6258 PROB>|T|       0.0001 RANGE              1
SGN RANK          264 PROB>|S|       0.0001 Q3-Q1       0.201923
NUM ¬= 0           32                       MODE        0.923077

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 000                      3     |        1.05+                                  ++++ ********
   9 22222266666             11  +-----+         |                            **********
   8 115588888                9  *-----*         |                     *******++
   7 33377                    5  +--+--+         |                ******+++++
   6 29                       2     |            |              ** ++++
   5 08                       2     |        0.55+           * *+++
   4                                             |         ++++
   3                                             |    +++++
   2                                             |++++
   1                                             |
   0 00                       2     *        0.05+    *****
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                        -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   31
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=3

UNIVARIATE

VARIABLE=MEAS           P-VALUE -- MEASUREMENT

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 34  SUM WGTS          34 100% MAX   0.729248     99%     0.729248      LOWEST    HIGHEST
MEAN        0.509589  SUM           17.326  75% Q3    0.616083     95%     0.694949    0.207998   0.653437
STD DEV     0.116444  VARIANCE   0.0135592  50% MED   0.500727     90%     0.662241    0.295097    0.65947
SKEWNESS   -0.267406  KURTOSIS   0.0781897  25% Q1    0.433018     10%     0.380077    0.376782   0.665011
USS           9.2766  CSS         0.447453   0% MIN   0.207998      5%     0.273323    0.383372   0.683516
CV           22.8506  STD MEAN      0.01997                          1%     0.207998    0.396717   0.729248
T:MEAN=0     25.5178  PROB>|T|       0.0001  RANGE      0.52125
SGN RANK       297.5  PROB>|S|       0.0001  Q3-Q1     0.183065
NUM ¬= 0          34                        MODE      0.207998

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 3                        1     |        0.75+                                          ++++*+++
   6 22355678                 8  +-----+         |                                ******+*+++*
   5 012234599                9  *--+--*         |                         ********+
   4 012335566778            12  +-----+         |               ***********
   3 088                      3     |            |        +++*+**+
   2 1                        1     |        0.25+++++*++++*
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   32
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=ARITHOTL       OPPORTUNITY-TO-LEARN -- ARITHMETIC

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                  38  SUM WGTS          38 100% MAX          1    99%            1      LOWEST    HIGHEST
MEAN         0.855688  SUM          32.5161  75% Q3    0.967742    95%     0.984677           0   0.967742
STD DEV       0.21463  VARIANCE   0.0460661  50% MED   0.903226    90%     0.967742           0   0.967742
SKEWNESS     -3.56422  KURTOSIS     12.8458  25% Q1    0.854839    10%     0.741935    0.741935   0.967742
USS           29.5281  CSS          1.70445   0% MIN          0     5%            0    0.741935   0.983871
CV            25.0828  STD MEAN   0.0348176                         1%            0    0.758065          1
T:MEAN=0      24.5763  PROB>|T|      0.0001  RANGE            1
SGN RANK          333  PROB>|S|      0.0001  Q3-Q1     0.112903
NUM ¬= 0           36                        MODE      0.967742

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                        1     |        1.05+                                +++++         *
   9 00022444777777777778    19  *-----*         |                         **************** *
   8 2445557999999           13  +--+--+         |               **********+++
   7 446                      3     |            |          ****    +++++
   6                                             |              ++++
   5                                         0.55+         +++++
   4                                             |    +++++
   3                                             |++++
   2                                             |
   1                                             |
   0 00                       2     *        0.05+    *****
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                              14:27 TUESDAY, AUGUST 20, 1991   33
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=ARITH          P-VALUE -- ARITHMETIC


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38  SUM WGTS          38 100% MAX    0.92123     99%      0.92123      LOWEST    HIGHEST
MEAN        0.704885  SUM          26.7856  75% Q3    0.799541     95%     0.889056    0.205644   0.862903
STD DEV     0.153453  VARIANCE   0.0235477  50% MED   0.747244     90%      0.86505    0.389013   0.863794
SKEWNESS    -1.37678  KURTOSIS     1.99805  25% Q1    0.647473     10%     0.444993    0.438704   0.876354
USS          19.7521  CSS         0.871267   0% MIN   0.205644      5%     0.379844    0.445692   0.887363
CV           21.7699  STD MEAN   0.0248933                          1%     0.205644    0.503581    0.92123
T:MEAN=0     28.3162  PROB>|T|      0.0001  RANGE     0.715586
SGN RANK       370.5  PROB>|S|      0.0001  Q3-Q1     0.152068
NUM ¬= 0          38                        MODE      0.205644

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 2                        1     |        0.95+                                      +++++++ *
   8 12226689                 8     |            |                                +***+** * *
   7 22333345567777899       17  *--+--*         |                     ************
   6 3579                     4  +-----+         |                 ****++++
   5 0188                     4     |            |            +*+***+
   4 45                       2     |            |      ++++*+*
   3 9                        1     0            |++++++  *
   2 1                        1     0        0.25+    *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   34
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=ALGOTL         OPPORTUNITY-TO-LEARN -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38  SUM WGTS          38 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.882401  SUM          33.5313  75% Q3     0.96875     95%            1           0          1
STD DEV     0.223752  VARIANCE   0.0500652  50% MED    0.96875     90%            1           0          1
SKEWNESS     -3.4676  KURTOSIS     12.1625  25% Q1    0.890625     10%     0.746875     0.71875          1
USS          31.4404  CSS          1.85241   0% MIN          0      5%            0        0.75          1
CV           25.3572  STD MEAN   0.0362974                          1%            0     0.78125          1
T:MEAN=0     24.3103  PROB>|T|      0.0001  RANGE            1
SGN RANK         333  PROB>|S|      0.0001  Q3-Q1     0.078125
NUM ¬= 0          36                        MODE       0.96875

STEM LEAF                       #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0000000                    7     |        1.05+                               +++*************
   9 1114444777777777777777    22  *-----*         |                  ****************
   8 144                        3  +--+--+         |                **    ++++
   7 2588                       4     0            |          * **** +++++
   6                                               |             ++++
   5                                           0.55+        +++++
   4                                               |    ++++
   3                                               |++++
   2                                               |
   1                                               |
   0 00                         2     *        0.05+    *****
     ----+----+----+----+--                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                         -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   35
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=ALG            P-VALUE -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38  SUM WGTS          38 100% MAX   0.933823     99%     0.933823      LOWEST    HIGHEST
MEAN        0.674488  SUM          25.6305  75% Q3    0.767899     95%      0.88258    0.203124   0.826894
STD DEV     0.158101  VARIANCE   0.0249958  50% MED   0.707416     90%     0.834195    0.282175   0.832832
SKEWNESS    -1.19758  KURTOSIS     1.49612  25% Q1    0.599879     10%     0.458261    0.406095   0.846461
USS          18.2123  CSS         0.924845   0% MIN   0.203124      5%     0.278223    0.464057   0.879883
CV           23.4401  STD MEAN   0.0256473                          1%     0.203124    0.479003   0.933823
T:MEAN=0     26.2986  PROB>|T|      0.0001  RANGE     0.730699
SGN RANK       370.5  PROB>|S|      0.0001  Q3-Q1      0.16802
NUM ¬= 0          38                        MODE      0.203124

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 3                        1     |        0.95+                                        ++++++*
   8 013358                   6     |            |                                 +**+**+* *
   7 0000133455666778        16  *-----*         |                       ***********
   6 136679                   6  |  +  |         |                  *****++++
   5 058                      3  +-----+         |              +++*+++
   4 1689                     4     |            |        ++*+** **
   3                                             |  ++++++
   2 08                       2     0        0.25+++  *   *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   36
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=GEOMOTL        OPPORTUNITY-TO-LEARN -- GEOMETRY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38  SUM WGTS          38 100% MAX   0.928571     99%     0.928571      LOWEST    HIGHEST
MEAN        0.449875  SUM          17.0952  75% Q3     0.60119     95%     0.860714           0   0.785714
STD DEV     0.249887  VARIANCE   0.0624438  50% MED    0.52381     90%     0.811905           0   0.809524
SKEWNESS   -0.131208  KURTOSIS   -0.793608  25% Q1    0.232143     10%    0.0904762    0.047619   0.833333
USS          10.0011  CSS          2.31042   0% MIN          0      5%            0   0.0952381   0.857143
CV            55.546  STD MEAN   0.0405371                          1%            0    0.119048   0.928571
T:MEAN=0     11.0979  PROB>|T|      0.0001  RANGE     0.928571
SGN RANK         333  PROB>|S|      0.0001  Q3-Q1     0.369048
NUM ¬= 0          36                        MODE      0.571429

STEM LEAF                     #  BOXPLOT                       NORMAL PROBABILITY PLOT
   9 3                        1     |        0.95+                                           ++*+
   8 136                      3     |            |                                     * *+*+
   7 9                        1     |            |                                   +*++
   6 02444                    5  +-----+     0.65+                               +***
   5 0577777777              10  *-----*         |                        ********
   4 005                      3  |  +  |         |                      **+++
   3 1188                     4  |     |     0.35+                   ***+
   2 146                      3  +-----+         |               +***
   1 02299                    5     |            |          ++******
   0 005                      3     |        0.05+   *****+* *
     ----+----+----+----+                        +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                      -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   37
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=GEOM           P-VALUE -- GEOMETRY


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38  SUM WGTS           38 100% MAX   0.781679      99%    0.781679      LOWEST    HIGHEST
MEAN         0.51186  SUM           19.4507  75% Q3    0.609579      95%    0.712668    0.101189   0.650298
STD DEV     0.140386  VARIANCE    0.0197082  50% MED    0.52496      90%    0.671319    0.201785   0.667476
SKEWNESS   -0.877836  KURTOSIS      1.29069  25% Q1    0.462177      10%    0.281806    0.258923   0.705902
USS          10.6852  CSS          0.729203   0% MIN   0.101189       5%    0.196755    0.284349   0.709036
CV           27.4266  STD MEAN    0.0227736                           1%    0.101189     0.36711   0.781679
T:MEAN=0      22.476  PROB>|T|       0.0001  RANGE     0.680491
SGN RANK       370.5  PROB>|S|       0.0001  Q3-Q1     0.147402
NUM ¬= 0          38                         MODE      0.101189

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 118                      3     |        0.75+                                       +*+*++++*
   6 01233457                 8  +-----+         |                               ******+**
   5 022233456679            12  *--+--*         |                       *********+
   4 066677779                9  +-----+     0.45+                 *******++
   3 77                       2     |            |          +++*+**+
   2 068                      3     0            |   +++++*+* *
   1 0                        1     0        0.15++++ *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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CLTYPE=4

UNIVARIATE

VARIABLE=STATOTL        OPPORTUNITY-TO-LEARN -- STATISTICS


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38  SUM WGTS          38 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.739766  SUM          28.1111  75% Q3    0.944444     95%            1           0          1
STD DEV     0.278858  VARIANCE    0.077762  50% MED   0.833333     90%            1           0          1
SKEWNESS    -1.49887  KURTOSIS     1.48966  25% Q1    0.611111     10%     0.211111    0.111111          1
USS          23.6728  CSS          2.87719   0% MIN          0      5%            0    0.222222          1
CV           37.6955  STD MEAN   0.0452368                          1%            0    0.333333          1
T:MEAN=0     16.3532  PROB>|T|      0.0001  RANGE            1
SGN RANK         333  PROB>|S|      0.0001  Q3-Q1     0.333333
NUM ¬= 0          36                        MODE      0.777778

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 000000                   6     |        1.05+                                   ************
   9 44444                    5  +------+        |                               ****
   8 3333339999              10  *------*        |                        *******
   7 2888888                  7  |  +   |        |                   *****++++
   6 11                       2  +------+        |                 ** ++++
   5 66                       2     |        0.55+                **++
   4 4                        1     |            |             ++*+
   3 3                        1     |            |          +++*
   2 2                        1     |            |      ++++  *
   1 1                        1     0            |   +++    *
   0 00                       2     0        0.05++++ *****
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                             14:27 TUESDAY, AUGUST 20, 1991   39
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=STAT           P-VALUE -- STATISTICS


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38  SUM WGTS          38 100% MAX   0.892061     99%     0.892061      LOWEST    HIGHEST
MEAN        0.729893  SUM          27.7359  75% Q3    0.821922     95%     0.890804    0.338888   0.870035
STD DEV     0.131816  VARIANCE   0.0173756  50% MED   0.756807     90%     0.876389    0.448738      0.875
SKEWNESS    -1.13648  KURTOSIS      1.1623  25% Q1    0.655747     10%     0.508883    0.455549   0.888889
USS          20.8872  CSS         0.642897   0% MIN   0.338888      5%     0.443246    0.514809   0.890738
CV           18.0597  STD MEAN   0.0213835                          1%     0.338888    0.592257   0.892061
T:MEAN=0     34.1335  PROB>|T|      0.0001  RANGE     0.553173
SGN RANK       370.5  PROB>|S|      0.0001  Q3-Q1     0.166175
NUM ¬= 0          38                        MODE      0.338888

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   8 6677999                  7     |       0.875+                                  **+** * *   *
   8 0002234                  7  +-----+         |                              ****+
   7 579999                   6  *-----*         |                         *****+
   7 4444                     4  |  +  |         |                      ****+
   6 5567788                  7  +-----+         |                 *****+
   6 24                       2     |            |               **++
   5 9                        1     |            |            +*++
   5 1                        1     |            |        ++++*
   4 56                       2     |            |    ++++  *
   4                                             |++++    *
   3                                             |
   3 4                        1     0       0.325+    *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=MEASOTL        OPPORTUNITY-TO-LEARN -- MEASUREMENT

                 MOMENTS                              QUANTILES(DEF=4)                     EXTREMES

N                 38  SUM WGTS          38 100% MAX          1     99%            1       LOWEST    HIGHEST
MEAN        0.718623  SUM          27.3077  75% Q3    0.923077     95%     0.963462            0   0.923077
STD DEV      0.25167  VARIANCE    0.063338  50% MED   0.769231     90%     0.961538            0   0.961538
SKEWNESS    -1.50704  KURTOSIS     2.15611  25% Q1    0.644231     10%     0.430769     0.153846   0.961538
USS          21.9675  CSS          2.34351   0% MIN          0      5%            0     0.461538   0.961538
CV           35.0212  STD MEAN   0.0408263                          1%            0     0.461538          1
T:MEAN=0      17.602  PROB>|T|      0.0001  RANGE               1
SGN RANK         333  PROB>|S|      0.0001  Q3-Q1       0.278846
NUM ¬= 0          36                        MODE        0.923077

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                        1     |        1.05+                                      ++++     *
   9 2222222666              10  +-----+         |                                ************
   8 158888                   6  |     |         |                            ****++
   7 77777                    5  *--+--*         |                        ****++
   6 25555999                 8  +-----+         |                  *******+
   5 08                       2     |        0.55+                 **+++
   4 666                      3     |            |             ****+
   3                                             |          ++++
   2                                             |      ++++
   1 5                        1     0            |  ++++     *
   0 00                       2     0        0.05++    *****
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                      -2        -1         0        +1        +2
```

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SIMS POPULATION A: BASIC STATISTICS                                                              14:27 TUESDAY, AUGUST 20, 1991   41
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

CLTYPE=4

UNIVARIATE

VARIABLE=MEAS           P-VALUE -- MEASUREMENT

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 38 SUM WGTS          38 100% MAX   0.761575     99%     0.761575      LOWEST    HIGHEST
MEAN         0.55678 SUM          21.1576  75% Q3     0.66645     95%     0.726727    0.123074   0.706042
STD DEV     0.145407 VARIANCE   0.0211432  50% MED   0.583983     90%     0.710448    0.192788   0.709152
SKEWNESS    -1.24478 KURTOSIS     1.54889  25% Q1    0.488392     10%     0.328754    0.293767   0.722115
USS          12.5624 CSS         0.782297   0% MIN   0.123074      5%     0.189303    0.332642   0.724893
CV           26.1157 STD MEAN   0.0235881                          1%     0.123074    0.382338   0.761575
T:MEAN=0     23.6042 PROB>|T|      0.0001  RANGE     0.638501
SGN RANK       370.5 PROB>|S|      0.0001  Q3-Q1     0.178058
NUM ¬= 0          38                       MODE      0.123074

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 11226                    5     |        0.75+                                   ++**+*+*   *
   6 0011234677899           13  +-----+         |                           *********
   5 1345667889              10  *--+--*         |                   ********+
   4 15689                    5  +-----+     0.45+               ****+++
   3 38                       2     |            |        ++++**+
   2 9                        1     |            | +++++++  *
   1 29                       2     0        0.15++   *   *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                        -2        -1         0        +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS                                                                   10:28 TUESDAY, MAY 7, 1991    1
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

VARIABLE   LABEL                                              N      N MISSING         MEAN        STANDARD
                                                                                                   DEVIATION

------------------------------------------ TYPE=CALCULUS CLASSES -------------------------------------------

SETSOTL    OPPORTUNITY-TO-LEARN -- SETS AND RELATIO           57              0          0.87           0.18
SETS       P-VALUE -- SETS AND RELATIONS                      57              0          0.65           0.16
NOSYSOTL   OPPORTUNITY-TO-LEARN -- NUMBER SYSTEMS             57              0          0.87           0.16
NOSYS      P-VALUE -- NUMBER SYSTEMS                          57              0          0.49           0.11
ALGOTL     OPPORTUNITY-TO-LEARN -- ALGEBRA                    57              0          0.91           0.14
ALG        P-VALUE -- ALGEBRA                                 57              0          0.55           0.13
GEOMOTL    OPPORTUNITY-TO-LEARN -- GEOMETRY                   57              0          0.59           0.16
GEOM       P-VALUE -- GEOMETRY                                57              0          0.34           0.09
CALCOTL    OPPORTUNITY-TO-LEARN -- ELEMENTARY FUNCT           57              0          0.85           0.23
CALC       P-VALUE -- ELEMENTARY FUNCTIONS AND CALC           57              0          0.48           0.14
PROBOTL    OPPORTUNITY-TO-LEARN -- PROBABILITY                57              0          0.53           0.27
PROB       P-VALUE -- PROBABILITY                             57              0          0.48           0.16
FINOTL     OPPORTUNITY-TO-LEARN -- FINITE MATH                57              0          0.67           0.35
FIN        P-VALUE -- FINITE MATH                             57              0          0.38           0.16

----------------------------------------- TYPE=PRECALCULUS CLASSES -----------------------------------------

SETSOTL    OPPORTUNITY-TO-LEARN -- SETS AND RELATIO          199              0          0.78           0.21
SETS       P-VALUE -- SETS AND RELATIONS                     195              4          0.53           0.16
NOSYSOTL   OPPORTUNITY-TO-LEARN -- NUMBER SYSTEMS            199              0          0.80           0.19
NOSYS      P-VALUE -- NUMBER SYSTEMS                         195              4          0.38           0.11
ALGOTL     OPPORTUNITY-TO-LEARN -- ALGEBRA                   199              0          0.84           0.17
ALG        P-VALUE -- ALGEBRA                                195              4          0.39           0.12
GEOMOTL    OPPORTUNITY-TO-LEARN -- GEOMETRY                  199              0          0.53           0.16
GEOM       P-VALUE -- GEOMETRY                               195              4          0.27           0.08
CALCOTL    OPPORTUNITY-TO-LEARN -- ELEMENTARY FUNCT          199              0          0.46           0.24
CALC       P-VALUE -- ELEMENTARY FUNCTIONS AND CALC          195              4          0.24           0.10
PROBOTL    OPPORTUNITY-TO-LEARN -- PROBABILITY               199              0          0.42           0.27
PROB       P-VALUE -- PROBABILITY                            195              4          0.38           0.12
FINOTL     OPPORTUNITY-TO-LEARN -- FINITE MATH               199              0          0.51           0.38
FIN        P-VALUE -- FINITE MATH                            195              4          0.28           0.17
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SIMS POPULATION B: BASIC STATISTICS                                                                 10:28 TUESDAY, MAY 7, 1991    2
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=SETSOTL        OPPORTUNITY-TO-LEARN -- SETS AND RELATIO

                 MOMENTS                              QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX          1     99%           1      LOWEST    HIGHEST
MEAN         0.87218  SUM          49.7143  75% Q3           1     95%           1           0          1
STD DEV     0.176383  VARIANCE   0.0311109  50% MED   0.857143     90%           1    0.428571          1
SKEWNESS     -2.6255  KURTOSIS     10.0794  25% Q1    0.857143     10%    0.714286    0.571429          1
USS           45.102  CSS          1.74221   0% MIN          0      5%    0.557143    0.571429          1
CV           20.2232  STD MEAN   0.0233625                          1%           0    0.714286          1
T:MEAN=0     37.3325  PROB>|T|      0.0001 RANGE             1
SGN RANK         798  PROB>|S|      0.0001 Q3-Q1      0.142857
NUM ¬= 0          56                       MODE              1

STEM LEAF                           #  BOXPLOT                       NORMAL PROBABILITY PLOT
 10 00000000000000000000000000    26  +-----+   1.025+                          ***********************
   9                                   |     |        |                              +++
   9                                   |     |   0.925+                           +++
   8 66666666666666666666         20  *--+--*        |                 **********
   8                                      |      0.825+                     +++
   7                                      |           |                   ++
   7 1111111                       7      |      0.725+           *******++
   6                                                  |             +++
   6                                             0.625+          +++
   5 77                            2      0           |       +***
   5                                             0.525+    +++
   4                                                  |  ++
   4 3                             1      0      0.425+++    *
   3                                                  |
   3                                             0.325+
   2                                                  |
   2                                             0.225+
   1                                                  |
   1                                             0.125+
   0                                                  |
   0 0                             1      *      0.025+  *
     ----+----+----+----+----+-                        +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                            -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991    3
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=SETS           P-VALUE -- SETS AND RELATIONS


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX   0.952379     99%     0.952379      LOWEST    HIGHEST
MEAN        0.649536  SUM          37.0235  75% Q3    0.779759     95%     0.872139    0.238094    0.82857
STD DEV     0.156794  VARIANCE   0.0245843  50% MED   0.657591     90%     0.822857    0.309522   0.857138
SKEWNESS   -0.568396  KURTOSIS   -0.161523  25% Q1    0.551012     10%     0.396462    0.369045   0.871425
USS          25.4248  CSS          1.37672   0% MIN   0.238094      5%     0.363092    0.369047   0.878568
CV           24.1394  STD MEAN   0.0207679                          1%     0.238094    0.382309   0.952379
T:MEAN=0      31.276  PROB>|T|      0.0001  RANGE     0.714286
SGN RANK       826.5  PROB>|S|      0.0001  Q3-Q1     0.228747
NUM ¬= 0          57                        MODE      0.630951

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 5                        1     |       0.975+                                             +++*
   9                                |            |                                         ++++
   8 678                      3     |            |                                      ++* * *
   8 223                      3     |       0.825+                                   ++***
   7 55667788899999          14  +------+        |                             *********
   7 0044                     4  |      |        |                           **+++
   6 56789                    5  *------*   0.675+                         ***+
   6 01223344                 8  |  +   |        |                     ****+
   5 556799                   6  +------+        |                  ****
   5 224                      3     |       0.525+                ***
   4 99                       2     |            |             ++*
   4 044                      3     |            |          ++***
   3 778                      3     |       0.375+      ++*+**
   3 1                        1     |            |   +++*
   2                                |            |+++
   2 4                        1     |       0.225+  *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991    4
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=NOSYSOTL       OPPORTUNITY-TO-LEARN -- NUMBER SYSTEMS

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.867446  SUM          49.4444  75% Q3    0.972222     95%            1           0          1
STD DEV      0.16052  VARIANCE   0.0257666  50% MED   0.888889     90%            1         0.5          1
SKEWNESS    -3.13901  KURTOSIS     14.6953  25% Q1    0.777778     10%     0.722222    0.611111          1
USS          44.3333  CSS          1.44293   0% MIN          0      5%          0.6    0.666667          1
CV           18.5049  STD MEAN   0.0212614                          1%            0    0.722222          1
T:MEAN=0     40.7992  PROB>|T|      0.0001  RANGE            1
SGN RANK         798  PROB>|S|      0.0001  Q3-Q1     0.194444
NUM ¬= 0          56                        MODE             1

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00000000000000          14     |       1.025+                                *****************
   9                             +------+        |                               +++
   9 4444444444444           13  |      |   0.925+                          *******
   8 99999999                 8  *--+---*        |                      ****++
   8 3333333                  7  |      |   0.825+                   ****+
   7 888888888                9  +------+        |             ******++
   7 22                       2     |       0.725+           **  +++
   6 7                        1     |            |          * +++
   6 1                        1     |       0.625+        *+++
   5                                |            |      +++
   5 0                        1     |       0.525+   +++*
   4                                             |+++
   4                                        0.425+
   3                                             |
   3                                        0.325+
   2                                             |
   2                                        0.225+
   1                                             |
   1                                        0.125+
   0                                             |
   0 0                        1     *       0.025+  *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991    5
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=NOSYS          P-VALUE -- NUMBER SYSTEMS

                 MOMENTS                              QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS           57 100% MAX    0.694444     99%     0.694444      LOWEST    HIGHEST
MEAN        0.488198  SUM           27.8273  75% Q3    0.568911     95%     0.669166     0.222221   0.620369
STD DEV     0.108456  VARIANCE    0.0117628  50% MED    0.48333     90%     0.619871     0.227509   0.625921
SKEWNESS   -0.443523  KURTOSIS    0.0180787  25% Q1    0.441664     10%     0.326689     0.277775   0.666666
USS           14.244  CSS          0.658715   0% MIN   0.222221      5%     0.272749     0.305556   0.691664
CV           22.2156  STD MEAN    0.0143654                          1%      0.22222      0.32235   0.694444
T:MEAN=0     33.9843  PROB>|T|       0.0001  RANGE     0.472224
SGN RANK       826.5  PROB>|S|       0.0001  Q3-Q1     0.127246
NUM ¬= 0          57                         MODE       0.22222

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   6 799                      3     |       0.675+                                        ++*+*   *
   6 001223                   6     |            |                                    *****
   5 5667777889              10  +-----+         |                              ******
   5 0022344                  7  |     |    0.525+                           ****
   4 55666777888899          14  *--+--*         |                    *******
   4 00144444                 8  +-----+         |                 ****+
   3 56                       2     |       0.375+             +***
   3 1233                     4     |            |        ++*****
   2 8                        1     |            |    ++++*
   2 23                       2     0       0.225+++*+  *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991    6
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=ALGOTL         OPPORTUNITY-TO-LEARN -- ALGEBRA


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX          1     99%             1     LOWEST    HIGHEST
MEAN        0.908772  SUM             51.8  75% Q3        0.96     95%             1           0         1
STD DEV     0.139131  VARIANCE   0.0193574  50% MED       0.92     90%             1         0.6         1
SKEWNESS    -5.32581  KURTOSIS     33.5509  25% Q1        0.88     10%          0.84         0.8         1
USS          48.1584  CSS          1.08401   0% MIN          0      5%          0.78         0.8         1
CV           15.3098  STD MEAN   0.0184283                          1%             0        0.84         1
T:MEAN=0     49.3138  PROB>|T|      0.0001  RANGE            1
SGN RANK         798  PROB>|S|      0.0001  Q3-Q1         0.08
NUM ¬= 0          56                        MODE          0.96

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00000000                 8     |       1.025+                                ++++*************
   9 6666666666666666666     19  +------+        |                          **********
   9 222222222222222         15  *--+---*   0.925+                   ********++
   8 88888888                 8  +------+        |              *****  ++++
   8 00444                    5     |       0.825+        ******    +++
   7                                             |              ++++
   7                                        0.725+          ++++
   6                                             |       +++
   6 0                        1     *       0.625+   +++*
   5                                             |+++
   5                                        0.525+
   4                                             |
   4                                        0.425+
   3                                             |
   3                                        0.325+
   2                                             |
   2                                        0.225+
   1                                             |
   1                                        0.125+
   0                                             |
   0 0                        1     *       0.025+  *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991    7
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=ALG            P-VALUE -- ALGEBRA


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                  57  SUM WGTS            57 100% MAX   0.755999     99%     0.755998      LOWEST    HIGHEST
MEAN         0.550836  SUM            31.3976  75% Q3    0.648332     95%     0.733328    0.246666   0.727996
STD DEV       0.12924  VARIANCE     0.0167029  50% MED   0.559997     90%     0.719464    0.269615   0.729999
SKEWNESS    -0.525557  KURTOSIS     -0.314801  25% Q1    0.485997     10%     0.371998    0.269999   0.733327
USS           18.2303  CSS           0.935362   0% MIN   0.246666      5%     0.269961    0.289998   0.733333
CV            23.4625  STD MEAN     0.0171182                          1%     0.246666    0.366665   0.755999
T:MEAN=0      32.1783  PROB>|T|        0.0001  RANGE     0.509333
SGN RANK        826.5  PROB>|S|        0.0001  Q3-Q1     0.162335
NUM ¬= 0           57                          MODE           0.5

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 6                        1     |       0.775+                                         ++++   *
   7 123333                   6     |            |                                     **** * *
   6 5778899                  7     |            |                                *****
   6 00012223444             11  +------+        |                           ******
   5 566779                   6  *--+---*        |                         ***+
   5 000112223                9  |      |        |                    *****
   4 559999                   6  +------+        |                  **++
   4 134                      3     |            |              +***
   3 7789                     4     |            |          +****
   3                                |            |      ++++
   2 5779                     4     |            |  +++++* * *
   2                                        0.225+++*
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1          0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991    8
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=GEOMOTL        OPPORTUNITY-TO-LEARN -- GEOMETRY


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.591652  SUM          33.7241  75% Q3    0.655172     95%          0.9           0   0.862069
STD DEV     0.157992  VARIANCE   0.0249613  50% MED   0.586207     90%     0.806897     0.37931   0.896552
SKEWNESS   -0.226675  KURTOSIS     3.15564  25% Q1    0.517241     10%     0.448276     0.37931   0.896552
USS          21.3508  CSS          1.39783    0% MIN         0      5%      0.37931    0.448276   0.931034
CV           26.7035  STD MEAN   0.0209265                          1%            0    0.448276          1
T:MEAN=0     28.2728  PROB>|T|      0.0001  RANGE            1
SGN RANK         798  PROB>|S|      0.0001  Q3-Q1     0.137931
NUM ¬= 0          56                        MODE      0.448276

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                        1     0       1.025+                                                *
   9                                             |                                                +++
   9 003                      3     0       0.925+                                            *++++
   8 6                        1     0            |                                       *****++
   8                                |       0.825+                                       +++
   7 99                       2     |            |                                    +**
   7                                |       0.725+                                ++++
   6 66666666999999          14  +-----+         |                             ********
   6 2222                     4  |     |    0.625+                          +**
   5 55555599999             11  *--+--*         |                      *****
   5 22222222                 8  +-----+    0.525+                  *****+
   4 5555555588              10     |            |                 *++
   4                                |       0.425+          *******
   3 88                       2     |            |      *** +++
   3                                        0.325+       +++
   2                                             |    +++
   2                                        0.225+ +++
   1                                             |+
   1                                        0.125+
   0                                             |
   0 0                        1     *       0.025+  *
     ----+----+----+----+                        +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                      -2        -1         0        +1        +2
```

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OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=GEOM           P-VALUE -- GEOMETRY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                  57  SUM WGTS            57 100% MAX   0.580459     99%     0.580459      LOWEST    HIGHEST
MEAN         0.344607  SUM            19.6426  75% Q3    0.407469     95%     0.502121    0.146054   0.485872
STD DEV     0.0941498  VARIANCE  0.00886418  50% MED   0.325859     90%      0.47694    0.165803   0.497125
SKEWNESS     0.206269  KURTOSIS   -0.318548  25% Q1    0.283661     10%     0.227586    0.195401   0.499994
USS           7.26536  CSS         0.496394   0% MIN   0.146054      5%     0.192442    0.195402   0.521262
CV            27.3209  STD MEAN   0.0124704                          1%     0.146054     0.21839   0.580459
T:MEAN=0      27.6339  PROB>|T|      0.0001  RANGE     0.434404
SGN RANK        826.5  PROB>|S|      0.0001  Q3-Q1     0.123808
NUM ¬= 0           57                        MODE      0.146054

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   5 8                        1     |       0.575+                                               +*++
   5 002                      3     |            |                                          ++*++
   4 66779                    5     |            |                                   *******+*
   4 011111234                9  +-----+    0.425+                               *****+
   3 66888888                 8  |     |         |                          *****
   3 001111222334            12  *--+--*         |                     ******
   2 556677899999            12  +-----+    0.275+               *******
   2 00234                    5     |            |          +****
   1 57                       2     |            |     +*+*+*
   1                                        0.125+++*++
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                        -2       -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   10
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=CALCOTL        OPPORTUNITY-TO-LEARN -- ELEMENTARY FUNCT

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.850292  SUM          48.4667  75% Q3    0.955555     95%            1           0          1
STD DEV     0.228774  VARIANCE   0.0523373  50% MED   0.933333     90%     0.982222         0.2          1
SKEWNESS     -2.4684  KURTOSIS     5.11894  25% Q1    0.877778     10%     0.373333    0.222222          1
USS          44.1417  CSS          2.93089   0% MIN          0      5%         0.22    0.266667          1
CV           26.9053  STD MEAN   0.0303018                          1%            0    0.266667          1
T:MEAN=0     28.0608  PROB>|T|      0.0001  RANGE            1
SGN RANK         798  PROB>|S|      0.0001  Q3-Q1    0.0777778
NUM ¬= 0          56                        MODE      0.911111

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00000                    5     |       1.025+                                ++     **********
   9 666666688888888         15  +-----+         |                             **********
   9 11111111113333333333    20  *-----*    0.925+                    **********
   8 77999                    5  +--+--+         |                 ***     +++
   8 22444                    5     |       0.825+              ****     ++
   7                                             |                     ++
   7                                        0.725+                   ++
   6                                             |                 ++
   6                                        0.625+               ++
   5 8                        1     *            |            +*+
   5                                        0.525+          ++
   4                                             |        ++
   4 0                        1     *       0.425+      ++    *
   3                                             |    ++
   3                                        0.325+ +++
   2 77                       2     *            |+         **
   2 02                       2     *       0.225+      * *
   1                                             |
   1                                        0.125+
   0                                             |
   0 0                        1     *       0.025+  *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   11
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=CALC           P-VALUE -- ELEMENTARY FUNCTIONS AND CALC

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX   0.739999     99%     0.739999      LOWEST    HIGHEST
MEAN        0.476171  SUM          27.1417  75% Q3    0.592035     95%     0.688686   0.0793101   0.663066
STD DEV     0.143755  VARIANCE   0.0206654  50% MED   0.507406     90%     0.635721    0.205183   0.675338
SKEWNESS   -0.562444  KURTOSIS   -0.132853  25% Q1    0.375169     10%     0.248887    0.218518    0.68839
USS          14.0814  CSS          1.15726    0% MIN 0.0793101      5%     0.217184    0.219905   0.691354
CV           30.1897  STD MEAN   0.0190408                          1%    0.0793101    0.229628   0.739999
T:MEAN=0     25.0079  PROB>|T|      0.0001 RANGE      0.660689
SGN RANK       826.5  PROB>|S|      0.0001 Q3-Q1      0.216866
NUM ¬= 0          57                       MODE       0.611111

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 4                        1     |       0.725+                                         ++++   *
   6 6899                     4     |            |                                      +** * *
   6 01111233                 8     |            |                                 ******
   5 555556799                9  +-----+         |                              ***+
   5 011111234                9  *-----*         |                         *****+
   4 889                      3  |  +  |         |                       **++
   4 23444                    5  |     |         |                    ***+
   3 55778999                 8  +-----+         |                 ****
   3 034                      3     |            |             ++**
   2 57                       2     |            |          ++***
   2 1223                     4     |            |      *+*+**
   1                                |            |   +++
   1                                |            |+++
   0 8                        1     |       0.075+  *
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                         -2       -1         0        +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   12
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=PROBOTL        OPPORTUNITY-TO-LEARN -- PROBABILITY


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX         1     99%            1      LOWEST    HIGHEST
MEAN        0.528822  SUM          30.1429  75% Q3    0.714286     95%            1           0          1
STD DEV     0.268574  VARIANCE   0.0721319  50% MED   0.571429     90%     0.885714           0          1
SKEWNESS   0.0490376  KURTOSIS   -0.917916  25% Q1    0.285714     10%     0.257143    0.142857          1
USS          19.9796  CSS          4.03938    0% MIN         0      5%     0.128571    0.142857          1
CV           50.7872  STD MEAN   0.0355735                          1%            0    0.142857          1
T:MEAN=0     14.8656  PROB>|T|      0.0001  RANGE            1
SGN RANK         770  PROB>|S|      0.0001  Q3-Q1     0.428571
NUM ¬= 0          55                        MODE      0.285714

STEM LEAF                     #  BOXPLOT                   NORMAL PROBABILITY PLOT
  10 00000                    5     |       1.025+                                       **********
   9                                |            |                                         ++
   9                                |       0.925+                                       ++
   8 6666                     4     |            |                                   ****
   8                                |       0.825+                                    +
   7                                |            |                                  ++
   7 11111111111111          14  +-----+    0.725+                            ********
   6                             |     |         |                              ++
   6                             |     |    0.625+                            ++
   5 77777777                 8  *-----*         |                        ****
   5                             |  +  |    0.525+                        ++
   4                             |     |         |                       +
   4 33333                    5  |     |    0.425+                     +***
   3                             |     |         |                   ++
   3                             |     |    0.325+                 ++
   2 9999999999999999        16  +-----+         |            **********
   2                                |       0.225+             ++
   1                                |            |           ++
   1 444                      3     |       0.125+        ****
   0                                |            |        ++
   0 00                       2     |       0.025+  *****+
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1          0        +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   13
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=PROB           P-VALUE -- PROBABILITY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                  57  SUM WGTS          57 100% MAX   0.928571     99%     0.928571      LOWEST    HIGHEST
MEAN         0.479265  SUM          27.3181  75% Q3    0.574997     95%     0.755971    0.146253   0.678569
STD DEV      0.157926  VARIANCE   0.0249407  50% MED   0.478568     90%     0.678569    0.166665   0.727203
SKEWNESS     0.170378  KURTOSIS    0.310004  25% Q1    0.379757     10%         0.25    0.222615   0.751079
USS           14.4893  CSS          1.39668   0% MIN   0.146253      5%      0.21702     0.22959        0.8
CV            32.9518  STD MEAN   0.0209178                          1%     0.146253    0.249998   0.928571
T:MEAN=0      22.9118  PROB>|T|      0.0001  RANGE     0.782318
SGN RANK        826.5  PROB>|S|      0.0001  Q3-Q1     0.195239
NUM ¬= 0           57                        MODE      0.428569

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 3                        1     0       0.925+                                                *
   8                                             |                                                 ++
   8 0                        1     |            |                                              +++
   7 5                        1     |            |                                          *+*+
   7 3                        1     |            |                                       +*++
   6 688                      3     |            |                                    +***
   6 00014                    5     |            |                                 ++**
   5 55677789                 8  +-----+         |                              ******
   5 0022233                  7  |     |    0.525+                          *****
   4 56678888                 8  *--+--*         |                      *****
   4 003333                   6  |     |         |                    ***+
   3 56889                    5  +-----+         |                 ***
   3 013                      3     |            |              +***
   2 5579                     4     |            |           +****
   2 23                       2     |            |        *+**
   1 57                       2     |            |     +*+
   1                                        0.125+ +*++
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   14
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=FINOTL         OPPORTUNITY-TO-LEARN -- FINITE MATH

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.666667  SUM                38  75% Q3           1     95%            1           0          1
STD DEV     0.354604  VARIANCE    0.125744  50% MED       0.75     90%            1           0          1
SKEWNESS   -0.662916  KURTOSIS   -0.973139  25% Q1        0.25     10%            0           0          1
USS           32.375  CSS          7.04167   0% MIN          0      5%            0           0          1
CV           53.1906  STD MEAN   0.0469685                          1%            0           0          1
T:MEAN=0     14.1939  PROB>|T|       0.0001  RANGE            1
SGN RANK          663  PROB>|S|       0.0001  Q3-Q1         0.75
NUM ¬= 0          51                        MODE             1

STEM LEAF                        #  BOXPLOT                       NORMAL PROBABILITY PLOT
  10 00000000000000000000000    23  +-----+    1.025+                           *********************
   9                                |     |         |                                ++
   9                                |     |    0.925+                               +
   8                                |     |         |                              +
   8                                |     |    0.825+                            ++
   7 5555555555555              13  *-----*         |                     ******+
   7                                |     |    0.725+                         ++
   6                                |  +  |         |                        +
   6                                |     |    0.625+                       +
   5                                |     |         |                     ++
   5 000000                      6  |     |    0.525+                  ***
   4                                |     |         |                  ++
   4                                |     |    0.425+                 +
   3                                |     |         |                +
   3                                |     |    0.325+              ++
   2 555555555                   9  +-----+         |            ******
   2                                   |       0.225+           ++
   1                                   |            |          +
   1                                   |       0.125+         +
   0                                   |            |       ++
   0 000000                      6     |       0.025+ ***********
     ----+----+----+----+---                        +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                         -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991  15
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=CALCULUS CLASSES

UNIVARIATE

VARIABLE=FIN            P-VALUE -- FINITE MATH


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 57  SUM WGTS          57 100% MAX    0.666656     99%     0.666656      LOWEST    HIGHEST
MEAN        0.380548  SUM          21.6912  75% Q3    0.501781     95%     0.627083           0    0.60833
STD DEV     0.160335  VARIANCE   0.0257073  50% MED      0.375     90%     0.594994   0.0833321   0.613632
SKEWNESS   -0.242208  KURTOSIS   -0.620502  25% Q1     0.27301     10%     0.162498   0.0833321      0.625
USS          9.69415  CSS          1.43961   0% MIN          0      5%    0.0833321       0.125   0.645832
CV           42.1327  STD MEAN   0.0212369                          1%            0    0.145832   0.666656
T:MEAN=0     17.9192  PROB>|T|      0.0001  RANGE     0.666656
SGN RANK         798  PROB>|S|      0.0001  Q3-Q1     0.228771
NUM ¬= 0          56                        MODE      0.166664

STEM LEAF                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   6 57                       2     |       0.675+                                          +++   *
   6 112                      3     |            |                                       **+* *
   5 67889                    5     |            |                                   ****
   5 000114                   6  +-----+         |                               *****+
   4 55588                    5  |     |         |                              **+
   4 0223344                  7  |     |         |                          *****
   3 5677777                  7  *--+--*         |                      ****+
   3 0011                     4  |     |         |                    +**+
   2 678899                   6  +-----+         |                 *****
   2 1134                     4     |            |              +***
   1 5777                     4     |            |           +***
   1 2                        1     |            |        ++**
   0 88                       2     |            |     +***
   0 0                        1     |       0.025+  *++
     ----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                       -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   16
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=SETSOTL        OPPORTUNITY-TO-LEARN -- SETS AND RELATIO


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                199  SUM WGTS         199 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.778177  SUM          154.857  75% Q3    0.857143     95%            1           0          1
STD DEV     0.211793  VARIANCE   0.0448563  50% MED   0.857143     90%            1           0          1
SKEWNESS     -1.5918  KURTOSIS     3.25103  25% Q1    0.714286     10%     0.571429           0          1
USS          129.388  CSS          8.88155   0% MIN          0      5%     0.428571           0          1
CV           27.2166  STD MEAN   0.0150136                          1%            0           0          1
T:MEAN=0     51.8314  PROB>|T|      0.0001  RANGE            1
SGN RANK      9457.5  PROB>|S|      0.0001  Q3-Q1     0.142857
NUM ¬= 0         194                        MODE      0.857143

                     HISTOGRAM                    #   BOXPLOT                        NORMAL PROBABILITY PLOT
  0.975+***********************                  45      |       0.975+                                 ******************
       .                                                 |            |                              +++
       .**************************************   75   *-----*         |                      ***********
       .                                              |     |         |                           ++
       .                                              |  +  |         |                        +++
       .********************                     39   +-----+         |                 *******+
       .                                                 |            |                   +++
       .                                                 |            |                 ++
       .************                             24      |            |           *******
       .                                                              |            +++
       .                                                              |          ++
       .****                                      7      0            |        ****
       .                                                              |     +++
       .                                                              |   ++
       .**                                        3      0            | ++    **
       .                                                              |+
       .                                                              |
       .*                                         1      *            |      *
       .                                                              |
  0.025+***                                       5      *       0.025+******
        ----+----+----+----+----+----+----+---                         +----+----+----+----+----+----+----+----+----+----+
        * MAY REPRESENT UP TO 2 COUNTS                                     -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                  10:28 TUESDAY, MAY 7, 1991   17
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=SETS           P-VALUE -- SETS AND RELATIONS

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                195  SUM WGTS         195 100% MAX   0.964286     99%     0.884284      LOWEST    HIGHEST
MEAN        0.531869  SUM          103.715  75% Q3    0.635709     95%      0.77714    0.154761   0.857143
STD DEV     0.155945  VARIANCE   0.0243188  50% MED   0.523808     90%     0.728094    0.166665   0.857143
SKEWNESS  -0.0337722  KURTOSIS   -0.185253  25% Q1    0.428571     10%     0.309249    0.166667   0.880951
USS          59.8804  CSS          4.71785   0% MIN   0.154761      5%     0.261427    0.214281   0.880951
CV           29.3201  STD MEAN   0.0111674                          1%     0.166189    0.214286   0.964286
T:MEAN=0     47.6268  PROB>|T|      0.0001  RANGE     0.809525
SGN RANK        9555  PROB>|S|      0.0001  Q3-Q1     0.207138
NUM ¬= 0         195                        MODE      0.428571

 MISSING VALUE        .
         COUNT        4
  % COUNT/NOBS     2.01

STEM LEAF                            #  BOXPLOT                        NORMAL PROBABILITY PLOT
   9 6                               1     0       0.975+                                                  *
   9                                                    |                                                 ++
   8 6688                            4     |            |                                             *****
   8 0123                            4     |            |                                           **+
   7 56677                           5     |            |                                       +***
   7 01111111222333344              17     |            |                                   *****
   6 55778888999                    11     |            |                                 ***
   6 000001112222222333334444444    27  +-----+         |                             *****
   5 555566666666677778888999       24  |     |    0.575+                          ****
   5 000000011112222223444          21  *--+--*         |                       ****
   4 5556667788888888888899999      25  |     |         |                    ****
   4 0001111123333333334444         22  +-----+         |                ****
   3 567888889                       9     |            |              ***
   3 0000112344                     10     |            |           +***
   2 5699999                         7     |            |       +*****
   2 11244                           5     |            |    *****
   1 577                             3     |       0.175+**+*
     ----+----+----+----+----+--                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                               -2        -1         0        +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   18
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=NOSYSOTL       OPPORTUNITY-TO-LEARN -- NUMBER SYSTEMS

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                199  SUM WGTS         199 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.795366  SUM          158.278  75% Q3    0.944444     95%            1           0          1
STD DEV     0.192331  VARIANCE   0.0369911  50% MED   0.833333     90%            1           0          1
SKEWNESS    -2.06879  KURTOSIS     6.05383  25% Q1    0.722222     10%     0.611111           0          1
USS          133.213  CSS          7.32424   0% MIN          0      5%          0.5           0          1
CV           24.1814  STD MEAN    0.013634                          1%            0           0          1
T:MEAN=0     58.3371  PROB>|T|      0.0001  RANGE            1
SGN RANK      9457.5  PROB>|S|      0.0001  Q3-Q1     0.222222
NUM ¬= 0         194                        MODE      0.777778

STEM LEAF                                #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 00000000000000000000000000         26     |       1.025+                                    ***************
   9                                           |            |                                  ++
   9 4444444444444444444444444444444    31  +------+   0.925+                               ******
   8 9999999999999999999999999          25  |      |        |                           *****
   8 33333333333333333333333333333      29  *------*   0.825+                        ****
   7 8888888888888888888888888888888    31  |  +   |        |                   ******++
   7 22222222222222                     14  +------+   0.725+                 *** ++
   6 777777777777777                    15     |            |              ****+++
   6 1111111111                         10     |       0.625+            ***+++
   5 666666                              6     |            |          ** ++
   5 0000                                4     |       0.525+        **+++
   4                                           |            |        ++
   4 4                                   1     |       0.425+     ++*
   3 9                                   1     0            |  +++  *
   3                                                   0.325+++
   2                                                        |
   2                                                   0.225+
   1                                                        |
   1 1                                   1     0       0.125+      *
   0                                                        |
   0 00000                               5     *       0.025+******
     ----+----+----+----+----+----+-                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                   -2        -1         0        +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   19
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=NOSYS          P-VALUE -- NUMBER SYSTEMS

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                195  SUM WGTS         195 100% MAX   0.647218     99%     0.639222      LOWEST    HIGHEST
MEAN         0.37859  SUM           73.825  75% Q3    0.447351     95%      0.57611    0.111111     0.6037
STD DEV     0.108618  VARIANCE   0.0117978  50% MED    0.38227     90%     0.522775    0.121296   0.618712
SKEWNESS     0.10005  KURTOSIS   -0.214473  25% Q1    0.301187     10%     0.237774    0.134259   0.624997
USS          30.2381  CSS          2.28878   0% MIN   0.111111      5%     0.212815    0.151849   0.638889
CV           28.6901  STD MEAN  0.00777829                          1%     0.120888    0.166667   0.647218
T:MEAN=0     48.6726  PROB>|T|      0.0001  RANGE      0.536107
SGN RANK        9555  PROB>|S|      0.0001  Q3-Q1      0.146164
NUM ¬= 0         195                        MODE       0.444444

 MISSING VALUE        .
         COUNT        4
  % COUNT/NOBS     2.01

STEM LEAF                                     #  BOXPLOT                        NORMAL PROBABILITY PLOT
   6 5                                        1     |       0.675+                                                  +
   6 000224                                   6     |            |                                            ****+**
   5 5566789                                  7     |            |                                        ****++
   5 000011112233344                         15     |            |                                    *****
   4 555555777777777777899                   21     |            |                                *****
   4 000000111112222223333344444444444       33  +-----+         |                           ******
   3 555555556666667777788888888999999999    36  *--+--*         |                       *****
   3 000011122222223333334444444444          30  +-----+         |                  ******
   2 5555666677777778888899999               25     |            |             ******
   2 01111222233344                          14     |            |       *******
   1 5788                                       4     |            |    ****+
   1 123                                        3     |       0.125+**+*
     ----+----+----+----+----+----+----+-                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                       -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   20
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=ALGOTL         OPPORTUNITY-TO-LEARN -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                199  SUM WGTS         199  100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.840804  SUM           167.32   75% Q3        0.92     95%            1           0          1
STD DEV     0.168701  VARIANCE     0.02846   50% MED       0.88     90%         0.96           0          1
SKEWNESS    -3.40253  KURTOSIS     13.9371   25% Q1        0.84     10%         0.72           0          1
USS          146.318  CSS          5.63507    0% MIN          0      5%          0.6           0          1
CV           20.0642  STD MEAN   0.0119589                          1%            0           0          1
T:MEAN=0     70.3079  PROB>|T|      0.0001  RANGE             1
SGN RANK      9457.5  PROB>|S|      0.0001  Q3-Q1          0.08
NUM ¬= 0         194                        MODE           0.88

STEM LEAF                                               #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 000000000000                                      12      |       1.025+                                   +++   **********
   9 6666666666666666666666666                         25      |            |                                ++*******
   9 2222222222222222222222222222222222222222          40  +-----+     0.925+                            *******
   8 8888888888888888888888888888888888888888          40  *-----*          |                       ******
   8 0000000000000444444444444444444444444444444444    46  +--+--+     0.825+                ********++
   7 666666666666666                                   15      |            |             ****   +++
   7 222                                                3      0       0.725+            *    +++
   6 8888                                               4      0            |          **  +++
   6 00044                                              5      0       0.625+        ***+++
   5                                                                        |        +++
   5 22                                                 2      *       0.525+     ++**
   4 8                                                  1      *            |  +++  *
   4                                                                   0.425+++
   3                                                                        |
   3 2                                                  1      *       0.325+      *
   2                                                                        |
   2                                                                   0.225+
   1                                                                        |
   1                                                                   0.125+
   0                                                                        |
   0 00000                                              5      *       0.025+******
     ----+----+----+----+----+----+----+----+----+-                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                                 -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=ALG            P-VALUE -- ALGEBRA

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                195  SUM WGTS         195 100% MAX   0.723995     99%     0.706717      LOWEST    HIGHEST
MEAN        0.388437  SUM          75.7452  75% Q3    0.465328     95%     0.603876        0.06       0.64
STD DEV     0.117815  VARIANCE   0.0138804  50% MED   0.385331     90%     0.548758        0.14    0.64152
SKEWNESS     0.25148  KURTOSIS   0.0457202  25% Q1    0.307996     10%     0.238951    0.146824    0.69428
USS           32.115  CSS           2.6928   0% MIN       0.06      5%     0.199381    0.179998   0.705997
CV           30.3306  STD MEAN  0.00843692                          1%       0.1368     0.18076   0.723995
T:MEAN=0     46.0401  PROB>|T|      0.0001  RANGE     0.663995
SGN RANK        9555  PROB>|S|      0.0001  Q3-Q1     0.157332
NUM ¬= 0         195                        MODE          0.06

 MISSING VALUE        .
         COUNT        4
  % COUNT/NOBS     2.01

STEM LEAF                                #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 12                                  2     0       0.725+                                                 **
   6 9                                   1     |            |                                               *+++
   6 0113344                             7     |            |                                          *****+
   5 666888899                           9     |            |                                      ****+
   5 000122222344                       12     |            |                                   +***
   4 5555556666666777777777788888899    31  +-----+         |                              ******
   4 0000000011111111222223333334444    31  |     |         |                          *****
   3 5555666666666777777888899999       28  *--+--*         |                      *****
   3 011111122222222222333334444444     30  +-----+         |                  *****
   2 5566777777788888889999             22     |            |             ******
   2 00112223344444                     14     |            |         *****
   1 588999                              6     |            |    *****+
   1 4                                   1     |            | *+*+
   0 6                                   1     0       0.075+*
     ----+----+----+----+----+----+-                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                  -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                           10:28 TUESDAY, MAY 7, 1991     22
OPPORTUN!TY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=GEOMOTL          OPPORTUNITY-TO-LEARN -- GEOMETRY

                  MOMENTS                                   QUANTILES(DEF=4)                       EXTREMES

N                  199  SUM WGTS           199 100% MAX    0.965517      99%      0.862069       LOWEST      HIGHEST
MEAN          0.527292  SUM            104.931  75% Q3     0.586207      95%      0.793103            0     0.793103
STD DEV       0.157432  VARIANCE     0.0247847  50% MED    0.517241      90%      0.724138            0     0.862069
SKEWNESS     -0.650919  KURTOSIS       2.14247  25% Q1     0.448276      10%       0.37931            0     0.862069
USS            60.2366  CSS            4.90737   0% MIN           0       5%      0.310345            0     0.862069
CV             29.8566  STD MEAN       0.01116                            1%             0            0     0.965517
T:MEAN=0       47.2483  PROB>|T|        0.0001  RANGE      0.965517
SGN RANK        9457.5  PROB>|S|        0.0001  Q3-Q1      0.137931
NUM ¬= 0           194                          MODE       0.517241

STEM LEAF                                               #  BOXPLOT                                NORMAL PROBABILITY PLOT
   9 7                                                  1     0              0.975+                                                  *
   9                                                                              |                                                 ++
   8 666                                                3     0                   |                                              ****
   8                                                                              |                                           +++
   7 6666669999999                                     13     |                   |                                       *******
   7 22222222                                           8     |                   |                                    +***
   6 6666666699999999                                  16     |                   |                                 ****
   6 22222222                                           8     |                   |                              ++**
   5 5555555555555555555555559999999999999999999999    46  +-----+                |                          *******
   5 222222222222222222222222222                       27  *--+--*                |                      *****
   4 5555555555555555555558888888888888888             37  |     |                |                    ****+
   4 1111111111                                        10  +-----+                |               ******
   3 88888888888                                       11     |                   |            ****+
   3 1114444444                                        10     |                   |        *****+
   2                                                          |                   |        +++
   2 144                                                3     0                   |     ++**
   1                                                                              |  +++
   1 0                                                  1     0                   |++    *
   0                                                                              |
   0 00000                                              5     *              0.025+******
     ----+----+----+----+----+----+----+----+----+-                                +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                                        -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   23
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=GEOM           P-VALUE -- GEOMETRY


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                195  SUM WGTS         195 100% MAX   0.477009      99%     0.454388      LOWEST    HIGHEST
MEAN        0.271702  SUM          52.9819  75% Q3    0.320685      95%     0.401521   0.0689655   0.437926
STD DEV    0.0752901  VARIANCE  0.00566861  50% MED   0.274463      90%      0.36942     0.09375   0.442526
SKEWNESS    0.104196  KURTOSIS   0.0395155  25% Q1    0.221263      10%     0.179209    0.100574    0.44901
USS           15.495  CSS          1.09971   0% MIN  0.0689655       5%     0.153619    0.109195   0.453446
CV           27.7105  STD MEAN  0.00539164                           1%    0.0927586    0.119538   0.477009
T:MEAN=0     50.3933  PROB>|T|      0.0001  RANGE     0.408043
SGN RANK        9555  PROB>|S|      0.0001  Q3-Q1     0.099422
NUM ¬= 0         195                        MODE      0.275862

 MISSING VALUE        .
         COUNT        4
  % COUNT/NOBS     2.01

STEM LEAF                              #  BOXPLOT                        NORMAL PROBABILITY PLOT
  46 7                                 1     0          0.47+                                                  *
  44 393                               3     |              |                                              **+*+
  42 418                               3     |          0.43+                                           ***++
  40 076                               3     |              |                                          **+
  38 1258177                           7     |          0.39+                                       ***+
  36 28908                             5     |              |                                     **+
  34 35678923479                      11     |          0.35+                                   ***
  32 1156888023567899                 16  +-----+           |                                ***
  30 12244570011569                   14  |     |       0.31+                             +***
  28 00112335666790133344555666799    29  |     |           |                          *****
  26 24455677024466688                17  *--+--*       0.27+                        ***
  24 0112444780233566899              19  |     |           |                     ***
  22 1111222444555566791356           22  +-----+       0.23+                  ****
  20 113777780346668                  15     |              |               ****
  18 00078115688                      11     |          0.19+            ****
  16 0678229                           7     |              |          ***
  14 7567                              4     |          0.15+        ***
  12 0375                              4     |              |     +**
  10 19                                2     |          0.11+   ***
   8 4                                 1     |              |+*+
   6 9                                 1     0          0.07+*
     ----+----+----+----+----+----                           +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-02                                  -2        -1          0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   24
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=CALCOTL        OPPORTUNITY-TO-LEARN -- ELEMENTARY FUNCT


                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 199  SUM WGTS         199 100% MAX          1     99%     0.977778      LOWEST    HIGHEST
MEAN         0.458738  SUM          91.2889  75% Q3    0.577778     95%     0.933333           0   0.955556
STD DEV      0.239703  VARIANCE   0.0574577  50% MED        0.4     90%     0.866667           0   0.955556
SKEWNESS     0.509713  KURTOSIS   -0.433627  25% Q1    0.266667     10%     0.177778           0   0.955556
USS           53.2543  CSS          11.3766   0% MIN          0      5%     0.133333           0   0.977778
CV            52.2528  STD MEAN   0.0169921                          1%            0           0          1
T:MEAN=0      26.9971  PROB>|T|      0.0001  RANGE            1
SGN RANK       9457.5  PROB>|S|      0.0001  Q3-Q1     0.311111
NUM ¬= 0          194                        MODE      0.266667

STEM LEAF                        #  BOXPLOT                        NORMAL PROBABILITY PLOT
  10 0                           1     |       1.025+                                                ++*
   9 666668                      6     |            |                                           ***** *
   9 11113333                    8     |       0.925+                                        *****++
   8 77779                       5     |            |                                      **  ++
   8 00002244                    8     |       0.825+                                    *** ++
   7 66688                       5     |            |                                   ** ++
   7 111133                      6     |       0.725+                                  **++
   6 7                           1     |            |                                 *++
   6 02222224                    8     |       0.625+                               +**
   5 66666666666888             14  +-----+         |                             +***
   5 11111113333333             14  |     |    0.525+                           +***
   4 77777799999                11  |  +  |         |                         ++**
   4 00000000000022224444444    23  *-----*    0.425+                       +****
   3 6666668888888              13  |     |         |                     +***
   3 1111111113333333333        19  |     |    0.325+                   ****
   2 77777777777777779999999    23  +-----+         |                ****
   2 0000022444444              13     |       0.225+             ***+
   1 66668888888                11     |            |         *****++
   1 1133                        4     |       0.125+       **  ++
   0                                   |            |        +++
   0 000002                      6     |       0.025+*******+
     ----+----+----+----+---                                +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                             -2        -1          0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   25
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=CALC           P-VALUE -- ELEMENTARY FUNCTIONS AND CALC

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                195  SUM WGTS         195 100% MAX   0.729628     99%       0.63718      LOWEST    HIGHEST
MEAN         0.24437  SUM          47.6522  75% Q3    0.288889     95%      0.438813   0.0703698   0.477778
STD DEV    0.0958848  VARIANCE  0.00919389  50% MED   0.230367     90%      0.354647   0.0770365   0.526293
SKEWNESS     1.57559  KURTOSIS     4.34235  25% Q1    0.177879     10%      0.149258   0.0892839   0.552218
USS          13.4284  CSS          1.78362   0% MIN  0.0703698      5%      0.133333    0.107842   0.633328
CV           39.2375  STD MEAN  0.00686645                          1%     0.0767698    0.110369   0.729628
T:MEAN=0      35.589  PROB>|T|      0.0001  RANGE     0.659258
SGN RANK        9555  PROB>|S|      0.0001  Q3-Q1     0.111009
NUM ¬= 0         195                        MODE      0.155556

 MISSING VALUE        .
         COUNT        4
  % COUNT/NOBS     2.01

                HISTOGRAM               #   BOXPLOT                        NORMAL PROBABILITY PLOT
  0.725+*                               1      *       0.725+                                                  *
       .                                                    |
       .*                               1      *            |                                                 *
       .*                               1      0            |                                               *
       .*                               1      0            |                                              *
       .***                             5      0            |                                          **** ++++
       .*                               2      |            |                                         **++++
       .*******                        14      |            |                                    ******
       .*********                      17      |            |                               ++****
       .*****************              34   +-----+         |                          ++******
       .**********************         43   *--+--*         |                     +********
       .****************************   56   +-----+         |            ***********
       .*********                      17      |            |    *********+++
  0.075+**                              3      |       0.075+** * +++++
        ----+----+----+----+----+---                         +----+----+----+----+----+----+----+----+----+----+
        * MAY REPRESENT UP TO 2 COUNTS                           -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   26
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=PROBOTL        OPPORTUNITY-TO-LEARN -- PROBABILITY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                199  SUM WGTS         199 100% MAX          1     99%            1      LOWEST    HIGHEST
MEAN        0.419239  SUM          83.4286  75% Q3    0.571429     95%            1           0          1
STD DEV     0.266711  VARIANCE   0.0711349  50% MED   0.285714     90%     0.857143           0          1
SKEWNESS    0.641537  KURTOSIS   -0.424016  25% Q1    0.285714     10%     0.142857           0          1
USS          49.0612  CSS          14.0847   0% MIN          0      5%            0           0          1
CV           63.6179  STD MEAN   0.0189067                          1%            0           0          1
T:MEAN=0     22.1741  PROB>|T|      0.0001  RANGE            1
SGN RANK      8602.5  PROB>|S|      0.0001  Q3-Q1     0.285714
NUM ¬= 0         185                        MODE      0.285714

                        HISTOGRAM                       #   BOXPLOT                        NORMAL PROBABILITY PLOT
  0.975+*******                                        13      0       0.975+                                        ***********
       .                                                       |            |                                            +
       .****                                            8      |            |                                      *** ++
       .                                                       |            |                                        ++
       .                                                       |            |                                      ++
       .**************                                 27      |            |                                ******
       .                                                       |            |                                  ++
       .                                                       |            |                                ++
       .***********                                    21   +-----+         |                             ****
       .                                                    |     |         |                             +
       .                                                    |     |         |                           ++
       .******                                         11   |  +  |         |                         ++ **
       .                                                    |     |         |                       ++
       .                                                    |     |         |                     ++
       .********************************************   88   *-----*         |               *************
       .                                                       |            |                 ++
       .                                                       |            |               ++
       .*********                                      17      |            |          ******
       .                                                       |            |            ++
  0.025+*******                                        14      |       0.025+***********+
        ----+----+----+----+----+----+----+----+----                         +----+----+----+----+----+----+----+----+----+----+
        * MAY REPRESENT UP TO 2 COUNTS                                            -2        -1        0         +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   27
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=PROB           P-VALUE -- PROBABILITY

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                195  SUM WGTS         195 100% MAX   0.714286     99%     0.707426      LOWEST     HIGHEST
MEAN        0.379804  SUM          74.0619  75% Q3    0.451697     95%     0.577614           0    0.642857
STD DEV     0.120344  VARIANCE   0.0144827  50% MED   0.380951     90%     0.531424   0.0833333    0.649654
SKEWNESS   0.0807491  KURTOSIS    0.315338  25% Q1    0.299996     10%       0.2267    0.130951    0.690473
USS          30.9387  CSS          2.80964   0% MIN          0      5%     0.190475    0.133331     0.70714
CV           31.6858  STD MEAN  0.00861801                          1%         0.08    0.138092    0.714286
T:MEAN=0      44.071  PROB>|T|      0.0001  RANGE     0.714286
SGN RANK      9457.5  PROB>|S|      0.0001  Q3-Q1     0.151701
NUM ¬= 0         194                        MODE      0.428571

 MISSING VALUE        .
         COUNT        4
  % COUNT/NOBS     2.01

STEM LEAF                                  #  BOXPLOT                        NORMAL PROBABILITY PLOT
   7 11                                    2     0       0.725+                                                 **
   6 59                                    2     0            |                                               *+++
   6 0344                                  4     |            |                                           ****+
   5 55677788                              8     |            |                                       *****
   5 00000012223444                       14     |            |                                   +****
   4 555555556666667888888999             24  +-----+         |                               +*****
   4 000001222333333333333333444444444    33  |     |         |                           ******
   3 55556666666777888888888889999999     32  *--+--*    0.375+                       ****
   3 000000011111222222223333333334       30  |     |         |                   *****
   2 5555555677777899999999               22  +-----+         |              ******
   2 00111112333334                       14     |            |         ******
   1 8999                                  4     |            |      +***+
   1 3344                                  4     |            |  +****
   0 8                                     1     |            |+*
   0 0                                     1     0       0.025+*
     ----+----+----+----+----+----+---                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                    -2        -1         0        +1        +2
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SIMS POPULATION B: BASIC STATISTICS                                                                  10:28 TUESDAY, MAY 7, 1991   28
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=FINOTL          OPPORTUNITY-TO-LEARN -- FINITE MATH

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                 199  SUM WGTS         199 100% MAX          1      99%           1      LOWEST    HIGHEST
MEAN          0.51005  SUM            101.5  75% Q3           1      95%           1           0          1
STD DEV      0.378426  VARIANCE    0.143207  50% MED        0.5      90%           1           0          1
SKEWNESS     0.134256  KURTOSIS    -1.50812  25% Q1        0.25      10%           0           0          1
USS            80.125  CSS          28.3549   0% MIN          0       5%           0           0          1
CV             74.194  STD MEAN   0.0268259                           1%           0           0          1
T:MEAN=0      19.0133  PROB>|T|      0.0001  RANGE            1
SGN RANK         6765  PROB>|S|      0.0001  Q3-Q1         0.75
NUM ¬= 0          164                        MODE          0.25
                 HISTOGRAM                #   BOXPLOT                        NORMAL PROBABILITY PLOT
  0.975+*****************************    58   +-----+    0.975+                               ********************
       .                                      |     |         |                                    +
       .                                      |     |         |                                  ++
       .                                      |     |         |                                 +
       .                                      |     |         |                            *** +
       .***********                      22   |     |         |                               +
       .                                      |     |         |                             ++
       .                                      |     |         |                            +
       .                                      |     |         |                           +
       .                                      *--+--*         |                        ****
       .************                     24   |     |         |                        +
       .                                      |     |         |                       +
       .                                      |     |         |                     ++
       .                                      |     |         |                    +
       .                                      +-----+         |                ********* 
       .******************************   60      |            |                 ++
       .                                         |            |                +
       .                                         |            |               +
       .                                         |            |             ++
  0.025+******************               35      |       0.025+*****************
        ----+----+----+----+----+----+                         +----+----+----+----+----+----+----+----+----+----+
        * MAY REPRESENT UP TO 2 COUNTS                             -2        -1         0        +1        +2
```

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SIMS POPULATION B: BASIC STATISTICS
OPPORTUNITY-TO-LEARN AND P-VALUES
BY CONTENT AREA

TYPE=PRECALCULUS CLASSES

UNIVARIATE

VARIABLE=FIN            P-VALUE -- FINITE MATH

                 MOMENTS                               QUANTILES(DEF=4)                    EXTREMES

N                195  SUM WGTS         195 100% MAX      0.875     99%        0.815     LOWEST     HIGHEST
MEAN        0.281977  SUM          54.9855  75% Q3    0.363091     95%     0.624997          0    0.728561
STD DEV      0.17066  VARIANCE   0.0291247  50% MED       0.25     90%     0.504999          0        0.75
SKEWNESS     0.85475  KURTOSIS    0.899152  25% Q1    0.166664     10%    0.0847603          0    0.799995
USS          21.1548  CSS          5.65019   0% MIN          0      5%    0.0399994          0      0.8125
CV           60.5225  STD MEAN   0.0122212                          1%            0          0       0.875
T:MEAN=0     23.0728  PROB>|T|      0.0001 RANGE         0.875
SGN RANK      8695.5  PROB>|S|      0.0001 Q3-Q1      0.196426
NUM ¬= 0         186                       MODE              0

 MISSING VALUE        .
         COUNT        4
  % COUNT/NOBS     2.01

STEM LEAF                                 #  BOXPLOT                        NORMAL PROBABILITY PLOT
   8 7                                    1     0       0.875+                                                  *
   8 01                                   2     0            |                                                 *
   7 5                                    1     0            |                                              **
   7 13                                   2     0            |                                            **    +
   6 7                                    1     0            |                                           *   +++
   6 223                                  3     |            |                                          **+++
   5 5578                                 4     |            |                                        **++
   5 0000012334                          10     |            |                                     ****
   4 566677788                            9     |            |                                   ***
   4 0022223444                          10     |            |                                +***
   3 555566677889                        12  +-----+         |                             ++***
   3 0000001111112223333444              22  |     |         |                           ++***
   2 55555555555555667777888899999999    32  *--+--*         |                        *****
   2 0000111111112222334444              22  |     |         |                     ****
   1 555555566777777778889999999         27  +-----+         |                 *****
   1 00000111111222222                   17     |            |              ****
   0 56666678889                         11     |            |         ******
   0 000000000                            9     |       0.025+*********+++
     ----+----+----+----+----+----+--                         +----+----+----+----+----+----+----+----+----+----+
  MULTIPLY STEM.LEAF BY 10**-01                                   -2        -1         0        +1        +2
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NOV 0 5 1997

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